

OCTOBER 1951

Route this to:



CHEMICAL PROCESSING

The News Magazine of Processing Developments and Control

Highlights

of this issue's
405 articles

*Describing developments in
processes, techniques, materials,
equipment*

\$200,000 Reduction in Plant
Investment for 50-Ton Caustic
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tinuous Operation 108

The Cover Picture

Huge crowds flocked to the
22nd Exposition of Chem-
ical Industries at New
York's Grand Central Pal-
ace in 1949. The 23rd Ex-
position, to be held this
year, will be even bigger.
See listing of exhibitors
on Page 22

PUTMAN PUBLISHING CO., CHICAGO

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... terse, vital editorial; "hand-picked" cir-
culation; square, high-visibility format; quality
readership; hence more READER ACTION



FOR SPORTSMEN ONLY...

What schools do these mascots represent?



1 TIGER



2 BEAR



3 MULE



4 HORSE



5 LION



6 WILDCAT



7 PANTHER

See next column for answers.

Just as these mascots represent a few of the many collegiate football teams on the gridiron this fall, the above fine chemicals are but four of the hundreds produced by B&A for exacting industrial applications.

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Of consistently high assay, 99.5% minimum, B&A Aluminum Nitrate is available as a colorless 9-water crystal in two grades—Reagent and Purified. Being very low in iron and sulfate, the Reagent grade is particularly adaptable to use as a source of aluminum oxide in the manufacture of radio and television tubes, fluorescent and incandescent lamp bulbs and lamp mantles. The Purified grade offers a quality suitable for such uses as in the manufacture of catalysts.

★ BARIUM FLUORIDE— BaF_2

A superior product, low in impurities, B&A Barium Fluoride assays 99% min. in the Reagent grade and 98% min. in the Technical. Its many applications include: ingredient of brazing and soldering fluxes; ceramic frit flux; ingredient of welding rod coatings; flux in preparation of high-copper alloys. It is also used in making heat-treating salts; as a filler in the manufacture of certain plastics, and for insulating electrodes of cathode ray tubes.

★ CALCIUM PHOSPHATE, Dibasic, Reagent— CaHPO_4

B&A Calcium Phosphate, Dibasic, Reagent is produced as a white, free-flowing powder, low in both heavy metals and alkalis. The carefully controlled ratio of CaO to P_2O_5 , and the extreme uniformity of this high quality product make it eminently suitable for use in the manufacture of phosphors. It also finds use in the manufacture of bio-chemicals or antibiotics.

★ SODIUM BIPHthalate— $\text{C}_8\text{H}_5\text{O}_2\text{Na} \cdot \text{H}_2\text{O}$

A free-flowing white crystal, Baker & Adamson Sodium Biphthalate assays 96% minimum. It is particularly low in iron and heavy metals and the pH is maintained within carefully-controlled limits. This fine chemical merits investigation if your process calls for a pure, soluble salt with a mild acid reaction.

These mascots represent such schools as: (1) Princeton, Louisiana State, Missouri; (2) Brown, U.C.L.A., Baylor; (3) Army, Muhlenberg, Colby; (4) So. Methodist, Western Michigan, Santa Clara; (5) Columbia, Penn State, Loyola (Cal.); (6) Kentucky, Kansas State, Northwestern; (7) Pittsburgh, Iowa Teachers, Middlebury.

"That's Interesting"

Electron beam freezes liquids — permanently

Recent work at General Electric's Research Labs has succeeded in polymerizing several organic liquids to form solid plastics. Using electron beams at energy levels of 800,000 volts, Drs. J. V. Schmitz and E. J. Lawton have 'frozen' styrene, acrylonitrile, methacrylates, and TEGMA (nickname for tetraethyleneglycol dimethacrylate). Since chemical polymerization of these materials is induced by changes in electron groupings



within the starting molecules, this work attempted to dispense with a roundabout chemical means and work with the electron themselves. Beams of electrons, acting in open air, knock out a few electrons of the small molecules, or stick to them. In either case a chain reaction may be initiated where the small molecules link up to form long chain polymers... and a solid plastic. Method has also solidified castor oil, prevented molding in bread, and converted sawdust to a digestible food for cows. (Summarized from release — General Electric, Schenectady 5, N.Y.)

Duplicate pictures for identification made in 60 seconds

Newly developed Fairchild-Polaroid ID Camera is an industrial adaptation of the versatile Polaroid Land print-a-minute camera. It produces two prints side by side with one exposure. (This provides one for badge, one for files.) A special shift device permits a second exposure of 2 more pictures on the same print, providing four pictures of one subject, or two pictures each of two subjects. Prints are developed automatically within the camera body and are ready to use within 60 seconds. Illumination is furnished by discharge flash, which the manufacturer recommends, or by conventional floodlights. (Fairchild Camera & Instrument Corp., Jamaica 1, N. Y.)

Fifteen patents released by AEC

Descriptions of 15 patents owned by the U. S. Government and held by the Atomic Energy Commission have been transmitted to the U. S. Patent Office for registry and listing in the official register of patents. The Commission will grant non-exclusive, royalty free licenses, as part of its program to make non-secret technological information available for use by industry. Here are two of typical interest to process industries.

Patent No. 2,555,996. Title: Valve. Issued: June 5, 1951. Inventor: R. B. Pontius. Needle type valve disclosed in the patent is particularly useful for controlling flow of corrosive gases. This valve has a control chamber of variable size with a flexible wall encompassing the flow control elements so that a minimum number of moving parts are exposed to corrosive gases.

Patent No. 2,558,698. Title: Electromagnetic Pumps. Issued: June 26, 1951. Inventor: E. J. Wade. This patent describes an electromagnetic liquid-metal pump of increased efficiency which uses a series of insulating barrier vanes inside the liquid metal conduit to reduce the tendency of the electric current to diverge in passing through the metal.

"That's Interesting"

Film on Instrumentation

Growth and significance of instrumentation are depicted in a narrated, 30-minute 16mm, colored moving picture. The film achieves a nice balance between educational and entertainment interests for various non or semi-technical groups. For professional instrument men, and others with specialized technical interests, there are sequences demonstrating control effects, instrument manufacture and instrument application. Instrument men operating in one industry can see, in this film, how instruments are applied in other industries. Script for the film titled "Information at Work," was written by Oveste Granducci of Washington, D. C. Producer is McLarty Picture Productions, Buffalo, N. Y. Taylor Instrument Companies, 95 Ames St., Buffalo, N. Y. is distributing the film on request for loan to technical societies, instrument engineers and similar groups.

Synthetic Sandow

Report states that a zoologist has developed an artificial muscles that can lift 100 times its own weight. This action is said to occur when the muscle is treated with another muscle substance. The artificial muscle is said to be made up of actomyosin, a chemical material found in all muscles that may cause muscular contraction. (U. S. I. Chemical News.)

Pocket humidicator

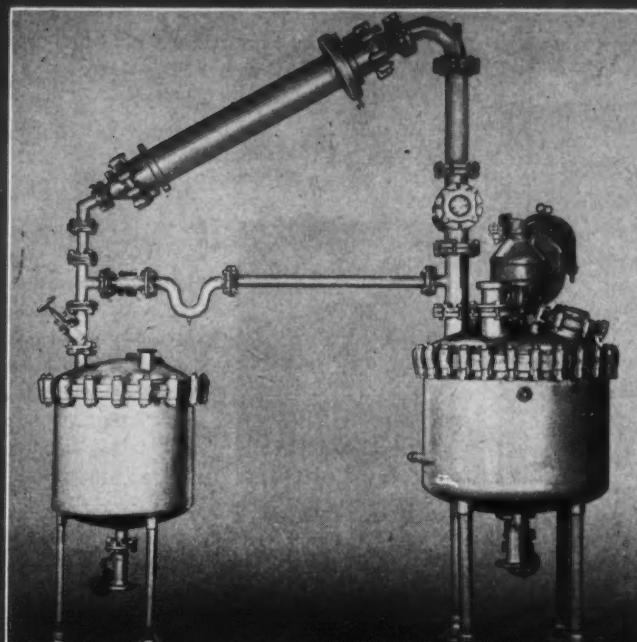
A pocket humidicator is based on the familiar, accurate psychrometric or "wet and dry bulb" principle. It is easy and fast to use. Wet the wick, aspirate the bulbs, read the thermometers, and without reference to graphs or tables, per cent relative humidity can be determined by a single setting of the self-contained slide calculator. Percentage relative humidity appears directly beneath a red arrow. Overall accuracy is plus or minus 2% under normal conditions. (Eberbach Announcer, Eberbach & Sons, Co., Ann Arbor, Mich.)

Extension light illuminates interior of any boxcar

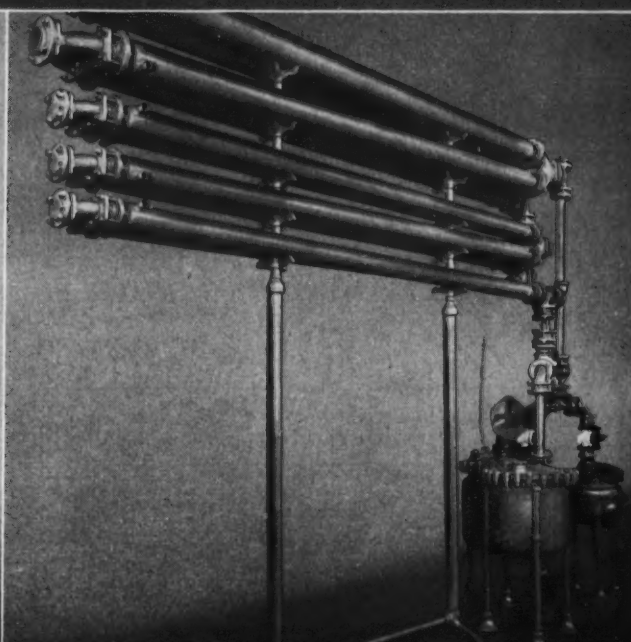
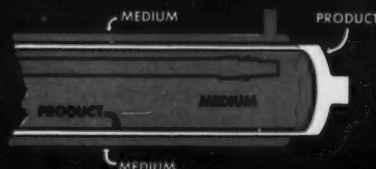
An overhead extension fixture and lamp incorporates a telescopic device for expansion in length to permit a wide range of application. The assembly is suspended at the top from any suitable support. A length of chain or wire can be inserted between the light and support to position the light in proper vertical position relative to area being illuminated. Unit can be suspended from a single point or from a messenger wire to permit sliding from one point to another. Elongation range permits light to be used in all freight cars regardless of door height. These lights are also used in storerooms for individual bin lighting. (Anchorlite is a development of The Pyle-National Co., 1334 N. Kostner Ave., Chicago, Ill.)

(Continued on third cover)

For more information on product at right, specify CP 6877 . . . see information request blank between pages 2-3.



Double Jacketed Glass-Lined Condensers employ internal and external jackets for maximum cooling capacity per square foot of surface.



Jacketed Glass-Lined Pipe with glass-lined return bends are effective for cooling or heating, especially under pressure.



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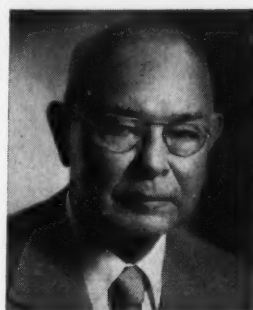
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**How the Chemical Exposition
Helps the Processor**

by
Harry McCormack



For 42 years, Harry McCormack was Director of the Chemical Engineering Department, Illinois Institute of Technology. Editor and author of standard texts, he is also a consultant and practical operator. He has been associated with CHEMICAL PROCESSING since its first year, serving as Technical Editor.

My advance interest in the 1951 Chemical Exposition exceeds that for any prior one because it occurs during the midst of "The Chemical Century" when expansion and development in the chemical field are occurring to a greater extent than in any other line of manufacture. It is the 23rd of its kind and surely both Management and Exhibitors have profited from observations made during prior expositions.

It comes at a time when the industry and ingenuity of all our processing groups are at a peak.

There are three objectives of chemical processing at present: do it better; do it faster; and do it cheaper. These will be illustrated in many of the products, machines, and instruments shown in the more than 400 exhibits. The exhibits will point the way to realizing a fourth objective rising from our growing national defense program: produce more of it.

There could be no more conclusive proof as to the soundness of our ideas regarding the accomplishments arising from free enterprise than a critical survey of the items present in this exposition.

Items which are sure to secure the attention of many visitors are the metal products resulting from the application of some recently developed casting techniques — sound steel castings from metal molds, and steel alloys of the stainless type produced with characteristics hitherto unattained.

A chemical processor is always interested in methods which may be used to combat corrosion of processing equipment. Recently developed protective coatings will be displayed and their characteristics publicized. Older protective coatings will have more documentation as to applications and service life. Certain methods of treating metals and alloys to retard corrosion will also be exemplified.

Processing equipment for many purposes will be shown (much of it using the superior metal parts mentioned above). Much of the equipment will be protected from corrosion by the process known to give the best results under the service conditions prevailing. Manufacturers of process equipment always have in mind the objectives mentioned earlier and they are showing equipment which is better than past items of the same kind in accomplishing at least one of the desired objectives.

The many adjuncts to processing equipment — such as control mechanisms and instruments for the analytical control of materials in process and of final products —

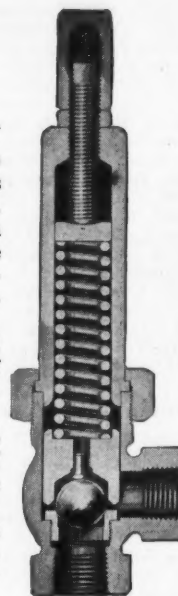
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**Edward
Valves**

**Edward
RELIEF
VALVES**

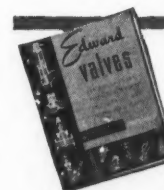
Fig. 141 Series...

Rating of 600 lb sp at 850 F, in sizes 1/4 in. through 2 in. Functional design and accurate spring action assure positive relieving action. Stainless steel ball and seat. Body of forged steel—bonnet, union ring, vapor tight cap and ball guide of rolled steel. Globe and angle types. Alloy steel springs available for temperatures over 400 F.



**Fig. 128
Series...**

Rating of 600 lb sp at 850 F with screwed or socket welding ends. Stainless steel screen—approximately seven times that of internal diameter of pipe. Gives extra large screening capacity—may be installed in vertical or horizontal pipe lines—built in sizes 1/4 in. to 2 in., inclusive—forged steel—globe-type design. Easily disassembled to clean screen.



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Edward Valves

Edward **GLOBE AND ANGLE VALVES**

Fig. 444-48 Series... Edward forged steel globe and angle valves are available in stop, needle or stop-check types. Union or bolted bonnet construction, screwed or socket welding ends and 13% chromium stainless steel seat and disk. Their design, with stem at 60° to line of flow, allows approximate straight-through flow and consequent savings because of low pressure drop and minimum turbulence. Built in 600 and 1500 lb sp series at 850F and in sizes ¼ in. to 2 in. inclusive.

Edward **CHECK VALVES**

Fig. 2672-78 Series... Edward forged steel check valves are built in both ball and piston disk types in 600 or 1500 lb sp series at 850 F for either horizontal or vertical lines. Union or bolted bonnet construction, screwed, socket welding or flanged ends and 13% chromium stainless steel seats and disks. Built in sizes ¼ in. to 2 in. inclusive.

Edward **INSTRUMENT VALVES**

Fig. 952-3 Series... Ratings of 6000 lb WOG or 1500 lb sp at 1000 F—carbon steel or 13% chromium stainless steel bodies in sizes ¼ in. through 1 in.—drop forged body & bonnet—screwed or socket welding ends—sawing bolted gland and tapered needle point 13% chromium stainless steel stem—no bonnet joint—globe and angle designs.

Edward **GAGE VALVES**

Fig. 152-3 Series... Ratings of 4000 lb WOG at 150 F or 600 lb sp at 750 F—carbon steel, 13% chromium stainless steel or 18-8 stainless steel bodies—13% chromium stainless steel semi-needle stem—disk—sizes ¼, ½, ¾ in. have safety taper threaded bonnet joint—¾ and 1 in. sizes have union bonnet—globe and angle designs.

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CHEMICAL PROCESSING

(CHEMICAL PROCESSING PREVIEW)

The News Magazine of Processing
Developments and Control

VOL. 14

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No. 10

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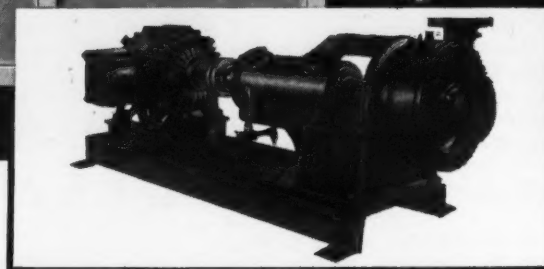


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\$200,000 Reduction in Plant Investment for 50 Ton Caustic Plant

Rapid selective solubilizing and removal from salt of an insoluble impurity in a super-gravitational field simplifies processing

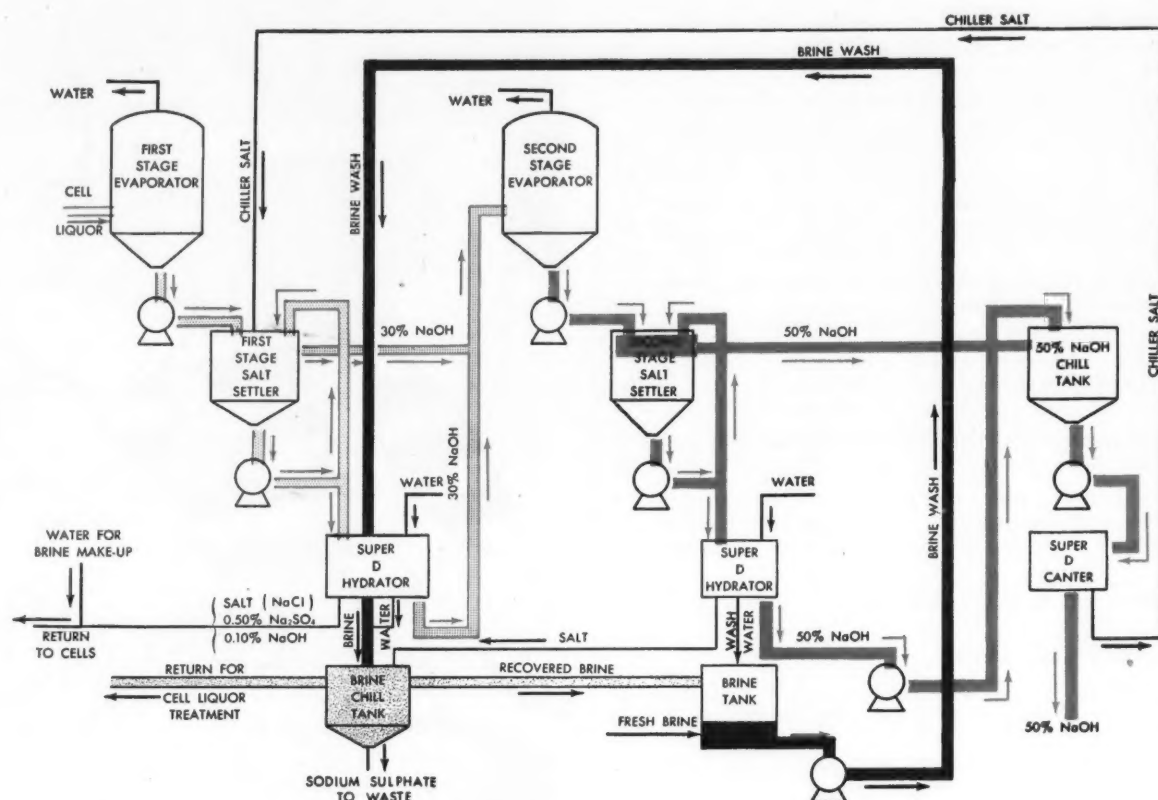
PROBLEM: In the manufacture of caustic soda by the electrolytic diaphragm cell process, it is necessary to hold the sodium sulphate level to a minimum by purging this impurity which enters with the raw salt from the system. Unless removed, operating efficiency and equipment in the process from the electrolytic cells through the evaporation and filtration stages, will suffer materially.

Several methods of sulphate removal are being used — depending generally on proximity of raw salt.

Where salt is relatively cheap, Na_2SO_4 can be purged from the system as dry salt or as a brine which has been used to wash sulphate from salt. Where salt is expensive, Na_2SO_4 may be removed by refrigeration of large quantities of wash brine which is low in Na_2SO_4 concentration; or by relatively costly BaCO_3 treatment of brine which is recycled to cells. Any of these methods results in either loss of material or high operating costs.

Where salt is washed with brine under static conditions, the rate of solution of Na_2SO_4 is quite slow, and requires a large volume of wash brine per lb of salt washed. This wash brine contains only a small concentration of Na_2SO_4 which is very costly to remove from the brine by refrigeration. Some plants find it cheaper to throw away this part of the product, others add a filtration step to remove the salt from its brine wash liquor at a much lower concentration of mother liquor.

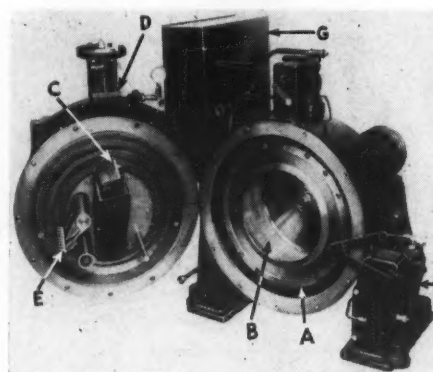
Solution: Under a field of high centrifugal force, the rate of solution of Na_2SO_4 in brine is tremendously increased. This causes the rapid removal of Na_2SO_4



OPERATION OF SUPER-D-HYDRATOR

Step	Disposal of liquor	Analysis of salt cake
1. Loading and drying of a 2-inch thick bed of crystals in the bowl	To second stage evaporation	4.5 to 5.0% Na_2SO_4 1.3 to 1.5% NaOH
2. Brine wash of up to 1 lb of brine per lb of cake (brine is saturated with NaCl but not with Na_2SO_4 , percent of saturation is approximately 20%)	To brine chill tank	
3. Water rinse of up to 0.2 lb water per lb of salt, and drying	To brine chill tank	0.6% Na_2SO_4 0.1% NaOH (This purified salt is returned to cells)
4. Unloading of salt cake, a very thin layer of crystals is left to provide a filter medium for the next batch		
5. Screen rinse to perforate the residual layer and provide free drainage for next load	To brine chill tank	

Open view of Super-D-Hydrator



- Perforated bowl
- Filter screens. A coarse endless 8 x 30 mesh screen lies next to the bowl wall; an intermediate fine screen comes next, with another endless 8 x 30 mesh screen on the outside
- Unloading knife. It rises and cuts the crystals away from the screens, leaving a thin residual layer. The discharge chute which leads the crystals from the machine is located directly under the knife
- Hydraulic cylinder and piston which actuates the unloading knife
- Distributor (leveler) which rides on the crystal layer as the layer is being formed
- Hydraulic snubber is adjustable for any desired pressure on the leveler
- Control panel with cycle timers

from the salt, and requires a comparatively small amount of brine. The result is a pure NaCl , extremely low in Na_2SO_4 and NaOH , and a small volume of brine containing a high concentration of Na_2SO_4 . Therefore, appreciably less refrigeration is required to precipitate and purge Na_2SO_4 from this small amount of brine.

The caustic liquor-salt mixture from the first stage evaporator is separated in a Super-D-Hydrator, a horizontal axis perforate basket centrifuge, in which each unit load is continuously processed automatically in a cyclic operation. An open view of the Super-D-Hydrator is shown in the accompanying photo. This centrifuge operates continually at full speed and is not accelerated or decelerated between cycles. Steps in the cyclic operation are given in the table.

Wash brine is forced through a thin (2") layer of salt cake at high velocity which rapidly dissolves the Na_2SO_4 , and provides mechanical scrubbing of adsorbed Na_2SO_4 . Rinse rates as high as 60 gal/min may be employed. The brine rinse, as well as all other steps in the complete cycle, are independently adjustable while the machine is in operation to compensate for process variables.

At no point is caustic soda diluted by either water or brine. An automatically operated diversion valve on the Super-D-Hydrator keeps mother liquor separate from rinse liquors. Diverted wash liquor (wash brine and wash water) is refrigerated to remove Na_2SO_4 .

Water added at the first and second stage Super-D-Hydrators for rinsing is used to dissolve salt separated in the second stage evaporator step. This forms a heavily Na_2SO_4 laden brine which is refrigerated to remove Na_2SO_4 . The entire brine wash system is kept in equilibrium with respect to NaOH by return of a small amount of this recovered brine, for treatment of incoming cell liquors. The amount of caustic returned is easily controlled by cycle setting of the Super-D-Hydrator.

Results: Selective dissolving in a super-gravitational field cuts time of removal of Na_2SO_4 from salt from hours, to about 10 to 15 seconds. Modernizing the electrolytic caustic soda process to take advantage of this achievement results in: (1) less load on evaporators since the caustic soda is not diluted, evaporation of rinse water is eliminated — approx 10% less water to evaporate per unit quantity of caustic produced; (2) no loss of brine or salt by purging; (3) refrigeration of a minimum volume of brine; (4) salt is removed from caustic soda only once; (5) recycle of NaOH through the system is materially reduced; (6) process simplification reduces required equipment and plant area. Conservative calculations show savings on direct operating costs of approx 15% over present methods for the modernized process now being installed for a large producer of alkali. Estimated major savings in capital investment for a new plant (50 tons per hour of 50% NaOH) are approximately \$75,000 for the smaller capacity evaporator, \$20,000 by eliminating brine washing system, \$40,000 for smaller refrigeration equipment, and \$65,000 by eliminating the filtering step following brine washing system for a total of \$200,000.

Source: This is a development of The Sharples Corporation, 2300 Westmoreland Street, Philadelphia 40, Pa. . . . or for more information check CP 6883 on handy form, pages 2 and 3.



"Wonder-worker" for the wonder drugs

**How
Celite
filtration
assures purity,
speeds production**

When producers of antibiotics sought a filter aid that would assure removal of all mycelium and other gelatinous impurities in the broth from which wonder drugs are extracted—and speed their "put-through" in the bargain—Celite ended the search.

The effectiveness of Celite can be attributed to these important factors which make it unique among filter aids:

Carefully processed from the purest deposit of diatomaceous silica known, Celite is available in nine standard grades—each designed to trap out suspended impurities of a given size and type. Whenever you reorder, you are assured of the same uniform, accurately graded powder re-

ceived in your initial order. Thus, with Celite, you can count on consistent purity in your filtrates—at highest rate of flow—month after month, year after year.

The manufacture of wonder drugs is just one of the many processes in which consistent purity and faster filtration have been obtained through the use of Celite. Your own filtration problem, regardless of the product involved, can no doubt be solved with the proper grade of Johns-Manville filter aid. To have a Celite Filtration Engineer study your problem and offer recommendations, without cost or obligation, just write Johns-Manville, Box 290, New York 16, N. Y.

Celite is a registered Johns-Manville trade mark



Johns-Manville CELITE

FILTER AIDS

When inquiring check CP 6884 on handy form, pgs. 2-3

BH therm-enomics* presents B-H BLANKETS

*The Black
Rockwool
Insulation*



Currently starring in the B-H review of insulating materials are B-H Blankets, felted between layers of any combination of: wire mesh and metal lath reinforcements to suit requirements. Some outstanding advantages of this versatile performer are:

- Effective to 1200°F
- 2' x 4' and 2' x 8' standard sizes
- Special sizes available
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- Fits curved surfaces
- Interlocking edges
- Incorporates lath for finishing cement
- High moisture resistance

Baldwin-Hill can help you cut down heat loss . . . by recommending a material and method of application from its complete line of Black Rockwool insulations. For most efficient heat control at lowest cost—with blanket, block, cements, etc.—call in a THERM-ENOMICS* consultant.

*Economics of Engineered Heat Control

Baldwin-Hill

IF IT'S TOO HOT
TO TOUCH



IT NEEDS
INSULATION

**Black
Rockwool**

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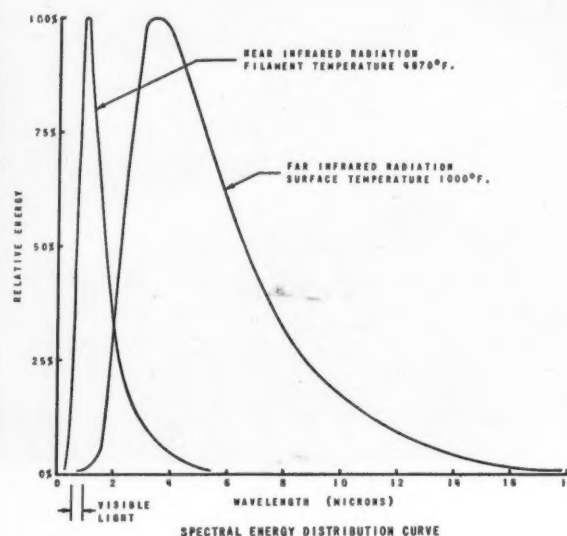
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BALDWIN-HILL CO., 882 BREUNIG AVE., TRENTON, N. J.

Far Infrared Radiation Dries Light-colored Material Faster, with Less Power than Near Infrared



**Tubular heaters dry water paints
on paper moving at 87 fpm with
54 kw power; near-infrared
from filament type dried at 50
fpm with 62 kw**

(including the visible portion of the spectrum) and have an operating surface temperature of approximately 4870°F.

Because of the difference in characteristic radiation of these two types heaters, absorption properties are likewise different. Most light-colored materials absorb the far infrared radiation better than the near infrared. The only material that reflects most of the radiation in both the near and the far infrared is a polished metal surface. The former fact is the reason for expecting better drying from tubular type radiant heaters in this application. The latter explains the need for reflectors to attain maximum efficiency.

Results: The converted oven's effective heated section has been decreased from 20 to 16' by the use of tubular-type heaters — a 4' saving. Wall paper now passes through the oven at 87 fpm, and drying is complete and uniform across web even though total power input of Chromalox heaters is 8 kw less than the original infrared heat source.

Source: Chromalox heaters are products of Edwin L. Wiegand Company, Dept. CP, 7500 Thomas Blvd., Pittsburgh 8, Pa. . . or for more information check CP 6886 on handy form, pages 2 and 3.

**Pottery eliminates dust, spillage
when it lets "zipper" conveyor
carry the ball clay . . .**

belt spreads open for filling, closes tightly, then carries load rapidly up, down, around sharp curves

Problem: Mansfield Pottery Co., Perryville, Ohio, used a bucket equipped lift truck to handle ball clay, china clay and also flint and feldspar. This method of handling, and nature of the materials, resulted in dust, spillage and a surge of clay when loads were dumped into mixers. A hazard was involved in moving trucks over an irregular route to feed a number of mixers.

Solution: Plant installed a mechanized system, em-

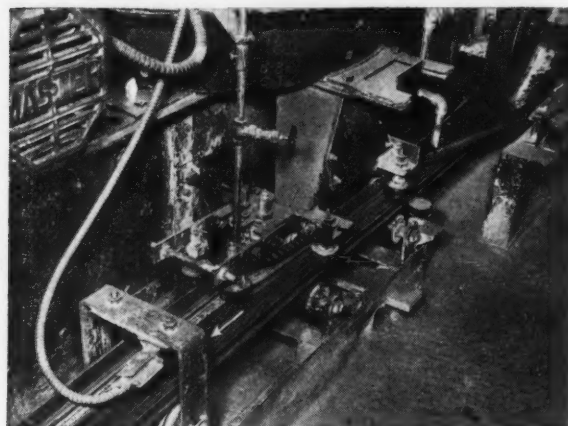
PROBLEM: Drying colored water paints on a custom-made wall paper was accomplished by passing the paper through a 20' double-pass oven with filament type infrared heaters at a speed varying from 43 to 50 fpm. Rating of the heaters was 62 kw, and their operating surface temperature approximately 4870°F.

Hearing about recent advances in far infrared radiant heating, the company looked at their equipment with an eye toward attaining faster drying with less power consumption.

Solution: The existing oven was easily converted by replacing the filament type infrared heat source with 30 Chromalox tubular type radiant heaters (types RAD-4181), 230 volts, 1800 watts each — 54 kw installed capacity. These were installed over the wall paper in a herringbone arrangement to assure even heat distribution. Electrically the heaters were subdivided into four banks: two banks having 7 heaters each, and two banks having 8 heaters each.

Distinction of tubular heaters lies in the fact that their radiation lies in the far infrared between the limits of 1 and 16 microns (see illustration), and their surface temperature about 1000 to 1400°F. On the other hand, filament heaters produce a near infrared radiation confined between the limits of about 0.4 and 5 microns

bodying a "zipper" belt conveyor and a two-stage bin discharger. Material is chuted from storage silos to a monorail weigh bucket which carries it to a ground level hopper for discharge. This cylindrical hopper is equipped with a two-stage bin discharger, which provides a uniform feed to the "zipper" belt conveyor. Air jets keep the "zipper" teeth clean, so the closing rollers can "zip" the belt tightly shut as it passes the feed point. "Zipper" conveyor then carries material up a 30' incline to "blunger" building. Here, the conveyor belt makes a 120° turn and twists through 180° before entering the building. Inside, conveyor travels 96' horizontally,



Two-stage bin discharger feeds "zipper" conveyor which is closed just past this feeding point

discharging into five blunger units which mix and agitate material with blades fitted with cross members. Opening and closing rollers, mounted on a movable carriage, allow belt to be discharged at any point.

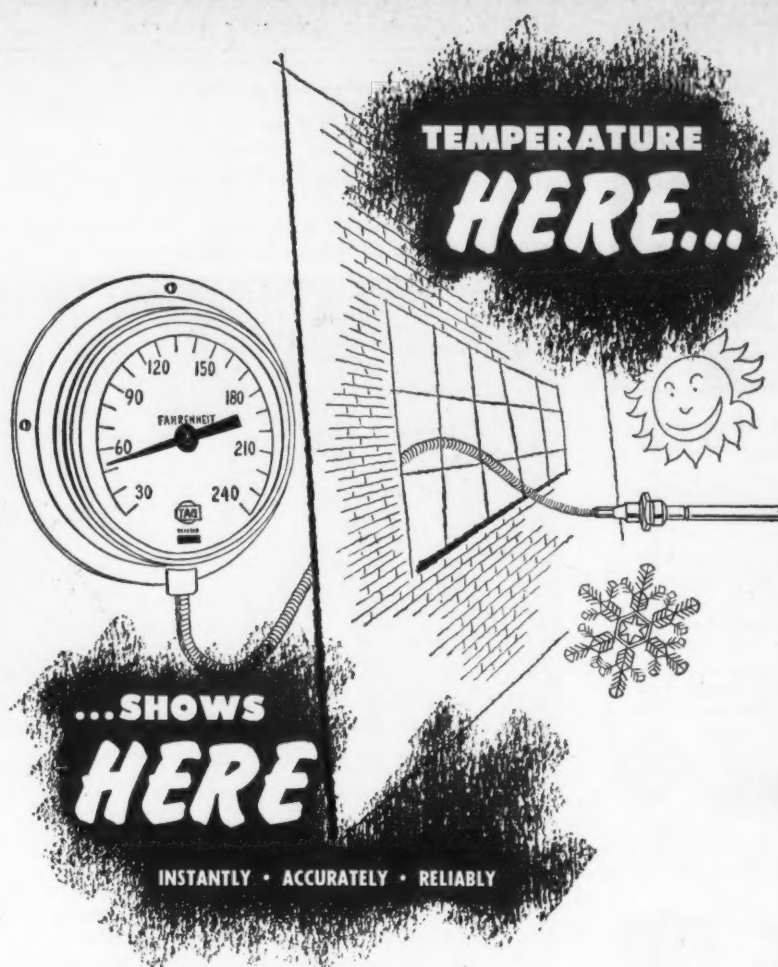
The bin discharger embodies a revolving cone with projecting flight fingers to agitate the material over a large area of bin bottom. With the two stage type, upper stage agitates and discharges material into lower stage. There, solid flights form an air-lock to keep aerated material under control and insure uniform discharge.

This particular installation did not require use of arch-breaker. Arch-breaker arm, however, can be connected by universal joint. Its upper end terminates in a rolling spider. Arm is given a rotary motion by means of universal connection. Where the material offers too much resistance, arm can simply rotate in place.

"Zipper" belt conveyor consists of flat endless base belt similar to conventional rubber and fabric belts — flexible rubber side walls, hinged to shoulders of base belt and interlocking rubber teeth molded on the outer edges of sidewalls. Standard 4" conveyor used in this installation operates at a speed of 100 fpm. With materials that normally are free falling, discharge is complete and conveyor is self-cleaning.

Results: Entire operation is now smooth and rapid with elimination of dust and spillage. This is achieved with ball clay having up to 30% moisture, china clay with 10% moisture and flint and feldspar with 5%. Up to 2 tons an hour are handled with material size ranging from approximately 1" to 200 mesh. Surge as material is emptied into mixers is avoided. Physical labor is reduced and inconvenience and hazard of truck in the important processing area is avoided.

Source: "Zipper" conveyors and bin dischargers are built by Stephens-Adamson Co., Dept. CP, Aurora, Ill. . . . or for more information check CP 6887 on handy form, pages 2 and 3.



• TAG DIAL-INDICATING THERMOMETERS

Around corners . . . through walls . . . from one floor to another—TAGliabue Dial Thermometers indicate true temperatures year in, year out. Needing no connection to any power supply, these sturdy instruments give readings as remote as 250 feet through temperature-compensated capillaries. Ranges extend from -300°F . to $+1000^{\circ}\text{F}$. Accuracy is unaffected by vibration or severe shock.

Use these versatile TAG Thermometers for marine, power plant, refrigeration system or heating equipment applications—in fact, *wherever* you need to know temperatures immediately, accurately, dependably. Be sure you have full information on file.



TAGLIABUE INSTRUMENTS DIVISION

Weston Electrical Instrument Corporation

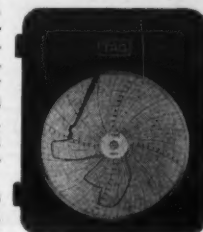
614 Frelinghuysen Avenue, Newark 5, New Jersey



"TAG" Temperature Recorders Chart from -300° to $+1000^{\circ}\text{F}$.

Accurate written records of varying temperatures are charted by the Temperature Recorders produced by TAGliabue Instruments Div., Dept. 67, Weston Electrical Instrument Corp., Newark 5, N. J. Temperatures as low as -300°F . or as high as $+1000^{\circ}\text{F}$. can be recorded with these versatile instruments.

Various types of actuations in TAG Temperature Recorders achieve scale expansion for utmost precision over the working ranges. Interchangeable tube systems are laboratory calibrated at the factory. A safety link provides over-range protection. Details are given in Catalog 1210.



Self-Operating Controllers Hold Precise Temperatures

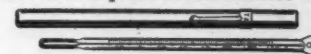
Temperatures between the limits of 20 and 300°F . are accurately maintained by the line of Self-Operating Controllers manufactured by TAGliabue Instruments Div., Dept. 67, Weston Electrical Instrument Corp., Newark 5, N. J. These controllers are entirely self-contained, requiring no connection to any air or electrical power supply.

Available in styles for use on steam, hot water or refrigerant lines, TAG Self-Operating Controllers continuously adjust the supply of heating or cooling medium to maintain constant temperature despite changing thermal conditions. Typical applications include water heaters, tanks, retorts, washers, driers and pasteurizers.



"Thermicator" Thermometer Used With or Without Case

Convenience is outstanding in the new "Thermicator" pocket-type thermometer introduced by TAGliabue Instruments Div., Dept. 67, Weston Electrical Instrument Corp., Newark 5, N. J. This simplified instrument can be used as either an armored or a plain thermometer.



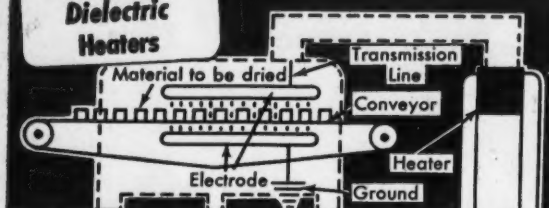
The "Thermicator" consists of an etched-stem glass thermometer and its non-corroding protective case. Slimmer than most fountain pens, it is secured in any depth pocket by an adjustable clip. There is no cap to unscrew; the thermometer is held in the case by spring pressure and is whisked free or replaced in a single motion.

● The "Thermicator" is 6" long, $\frac{3}{8}$ " in diameter, and is graduated in 2° divisions. Ranges are -30 to $+120^{\circ}\text{F}$. (spirit-filled) and 0 to $+220^{\circ}\text{F}$. (mercury-filled). Entire bore is visible.

When inquiring check CP 6888 on handy form, pgs. 2-3

For Speed and Uniformity in Process Drying

Allis-Chalmers Dielectric Heaters



ALLIS-CHALMERS dielectric heaters present interesting possibilities to manufacturers needing high speed, or uniform drying in their processes.

The standard ovens originally developed for core drying and twist setting can actually be used for drying many other products.

Allis-Chalmers dielectric heaters fit into production techniques. Continuous conveyors carry material between the electrodes for drying. Because drying time is a matter of minutes, and the oven is short, space requirements are considerably less than conventional conveyor type ovens, or batch ovens plus racks.

Get engineering and cost studies from your nearby Allis-Chalmers Office, or write Allis-Chalmers, Milwaukee 1, Wis. A-3358

ALLIS-CHALMERS



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NEW SOLUTIONS of processing problems

Plant reduces dusting and power consumption by using fluidized conveying . . .

low-pressure air used only to maintain fluid state, flow is due to gravity in slightly sloped conveyor

Problem: Dust and fines leaking from conventional screw conveyors at Allentown Portland Cement Com-

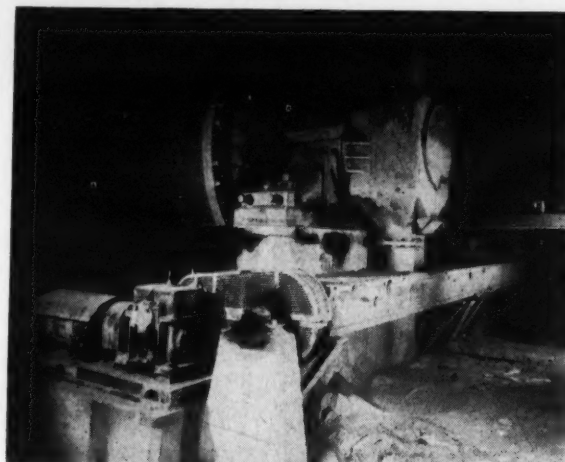


Fig 1 Cement raw materials being conveyed from tube mills by 12" screw conveyor

pany, Evansville, Pa., created dust nuisance and necessitated extreme vigilance over lubrication of bearings and other critical points.

Solution: Plant management took advantage of the tendency of their finely pulverized materials to be fluidized. They installed Fuller Airslide Conveyors. These conveyors, shown in the illustrations, are internally

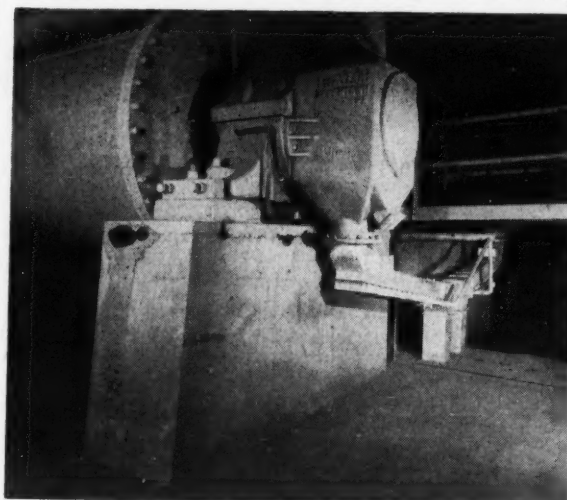


Fig 2 Same installation after screw conveyors were replaced by 8" Airslide conveyor

divided into two sections. The division is made by a horizontal porous fabric with a low air permeability. Flanges running longitudinally on the conveyor mark the fabric divider. When low pressure air is admitted to the section below the fabric, finely powdered materials above it are fluidized. This fluidized material will flow, like a liquid, so long as a sufficient slope is maintained.

Two installations are pictured. Conveyors in Fig 2,

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IZZAT 80?

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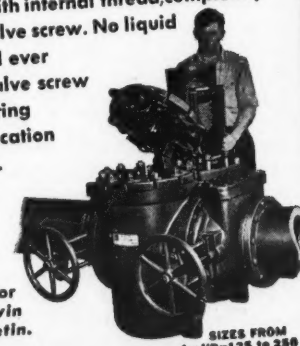
BEACH-RUSS COMPANY
46 CHURCH STREET - NEW YORK 7, N. Y.

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The valve shaft is your indicator. When it protrudes from the gland, covering the valve screw, the near chamber is shut off. When it is hidden by the gland, the farther chamber is closed. It is as simple as that . . . This valve shaft, with internal thread, completely protects the valve screw. No liquid being strained ever touches the valve screw threads, assuring constant lubrication and long life.



Get all the story. Write for the Type A Twin Strainer Bulletin.

A-312



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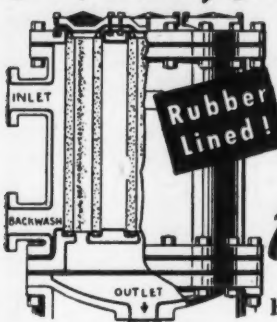
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CHEMICAL PROCESSING

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Get Crystal Clear FILTERING of Corrosive Acids

Cut Filtering Costs with



ADAMS PORO-STONE FILTERS

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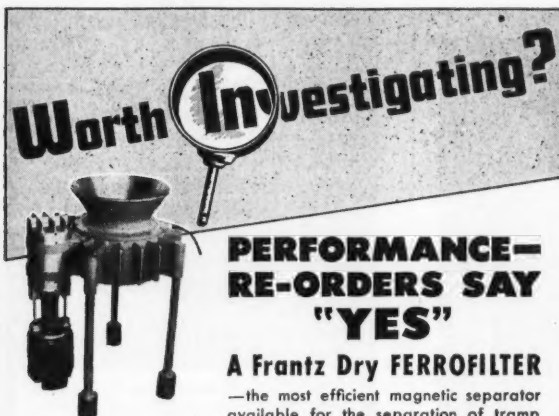
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Filter tubes inert to acids or alkalis.

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PERFORMANCE— RE-ORDERS SAY "YES"

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For further information send for our illustrated Bulletin No. 46

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Manufacturers of Permanent Magnet and Electromagnetic Separators

When inquiring check CP 6894 on handy form, pgs. 2-3

OCTOBER, 1951

NEW SOLUTIONS of processing problems

taking output of two tube mills (40% through 200 mesh), are supplied by air line running near catwalk and entering Airslides near their discharge points.

Results: Use of Airslides eliminated the dusting and lubrication problems. This can be seen in the photos of the tube mills. Fig 1 shows how dust and fines had leaked — accumulations are plainly visible under the conveyor. In Fig 2 there is practically no leakage evident. Also note elimination of motor, drive, speed reducer, and concrete bases, resulting in much open floor space. As well as eliminating loss of dust and minimiz-

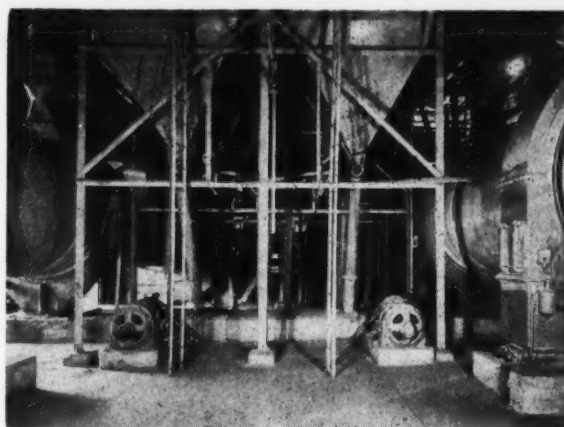


Fig 3 Four screw conveyors and motors (two not shown) carried finished cement from dust collectors and tube mills in the original installation

ing lubrication, the F-H Airslides use much less power than the screw conveyors. At the tube mills, for instance, a 5 hp 12" screw conveyor was replaced by an Airslide using 48 cfm at fan pressure.

In the other installation (Fig 3 and 4), Airslides convey fines from dust collectors and finished Portland cement

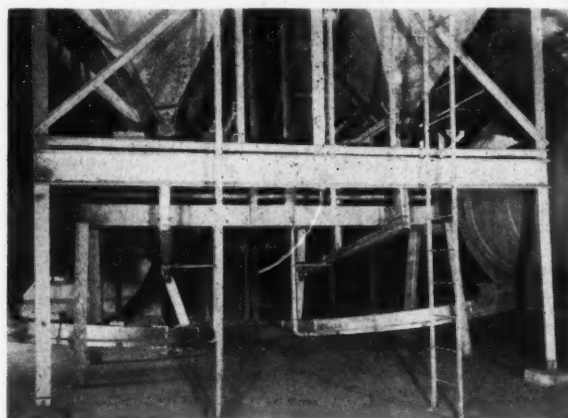


Fig 4 Airslide conveyors that replaced original system shown in Fig 3

from two tube mills. Four Airslides replaced two sets of screw conveyors. The former system required four motors totalling 60 hp; Airslides use 3 hp to do the same work.

When an Airslide system is closed down, there will be a slight residue of material on the fabric. The depth of the residue will depend upon the material being conveyed and the slope of the installation. When the flow

(Continued on next page)

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Wire 1/8" Dia.
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Supplied experimentally or
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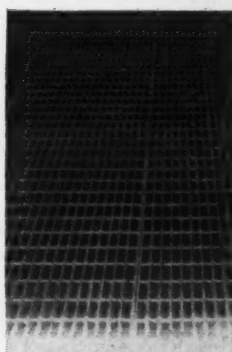
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AREA for light and
air.

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surface.

4. SELF-CLEAN-
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5. SAFE footing at
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twisted cross bar.

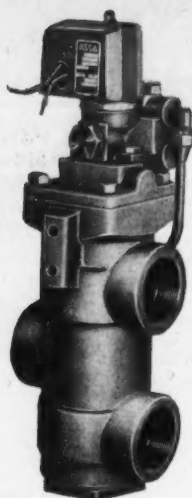
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PIPE SIZES: 1, 1 1/4, 1 1/2 and 2 inches

We recommend this valve for controlling equipment where pressure must be alternately applied and exhausted as, for example, with diaphragm motor valves, air or hydraulic cylinders, etc. Classed as Bulletin 8331 ASCO Valves, here are a few specifications: maximum pressure 125 to 250 pounds; minimum pressure 10 to 20 pounds. Suitable for handling air, water, gas, oil and other non-corrosive gases or liquids up to 180° F.

Since the automatic control of any alternating application and release of pressure is so important for efficient operation, we suggest that you bring your problems to the attention of our engineers whose experience goes back nearly 40 years.

If you have recurrent and varying needs for automatic control valves, you should have our General Valve Catalog No. 23.



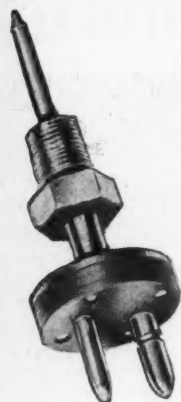
When in need of Automatic Transfer Switches, Remote Control Switches, Contactors, Relays, and Specialized Electromagnetic Controls, come to us.

Automatic Switch Co.

379 LAKESIDE AVENUE • ORANGE, NEW JERSEY

When inquiring check CP 6897 on handy form, pgs. 2-3

QUICK RESPONSE!



These Protected Thermocouples respond quickly to temperature changes—the sensitive hot junction is an integral part of the thin-walled Protection Tube. Ideal for processes or pilot plants requiring frequent checks on operating temperatures. Made with Iron Constantan, Copper Constantan or Chromel Alumel elements. Quick Coupling Plug or Screw Connection Heads.

Let us quote on your requirements for Standard or Special Thermocouples, Quick Coupling Connectors, Panels, Lead Wires and Accessories; or, send for our catalog R.

Thermo Electric

CO. INC.

FAIR LAWN
NEW JERSEY

When inquiring check CP 6898 on handy form, pgs. 2-3

NEW SOLUTIONS of processing problems

(Continued from preceding page)

of material is resumed, this residue is immediately replaced and is the first to be discharged.

F-H Airslides are available in capacities of 300 cu ft per hour to 8000 cu ft per hour.

Airslide Conveyors are applicable to pulverized materials such as:

Alumina	Fly ash
Bauxite	Limestone
Calcined magnesite	Phosphate rock
Clays	Phosphates
Coal	Silica Flour
Detergents (final product)	Soda Ash
Dolomite	Synthetic resins
Flour	Talc

Aerated angle of repose depends on particle size and type of materials.

Sample of one cubic foot of the material should be submitted for test.

Source: F-H Airslide is a product of Fuller Company, Dept. CP, Catasauqua, Pa. . . or for more information check CP 6899 on handy form, pages 2 and 3.

**Foundry facings are bagged
at rate of 100 + bags/hour
by single machine . . .**

company reports no trouble with their two baggers after more than two years of operation

The Chicago, Illinois, plant of The Hill & Griffith Company produces foundry facings — compounds which are

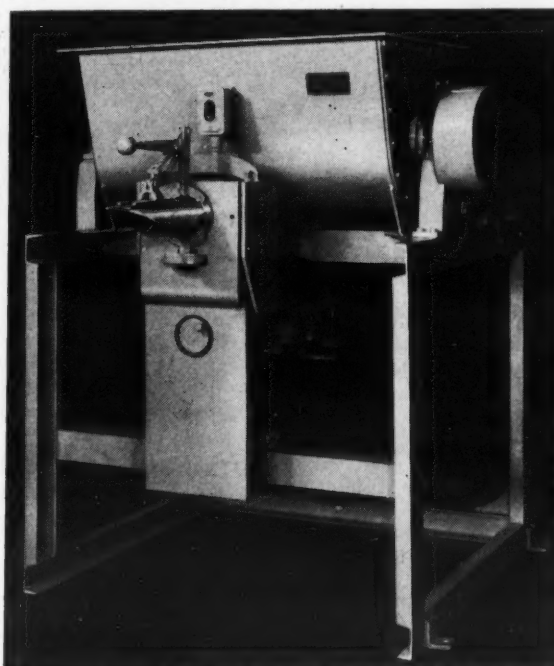


Figure 1 — This is the type of bag packer being used by The Hill & Griffith Company at Chicago, Ill., as well as Cincinnati, Ohio

blended to the sand molds to prevent the molten metal from penetrating into the sand and reacting with it. These materials are carbonaceous in nature — so they can be

RESIST CORROSION in Liquid Volume Measurements



with NIAGARA STAINLESS STEEL METERS

• Your problems of metering corrosive liquids are probably solved with Niagara Chemical Meters. Built of type 316 stainless steel, they measure with the same accuracy as the standard bronze meters, best-known in industry for many years. They are simple, practical, reliable . . . Investigate today!

Please send me complete details on the uses Niagara Chemical Meters offer me for:

Liquid

Temp.°F Pressure.....p.s.i.

Flow rate g.p.m.

Company

By

Address

BUFFALO METER CO.

2892 MAIN STREET
BUFFALO, N. Y.

When inquiring check CP 6900 on handy form, pgs. 2-3

CHEMICAL PROCESSING



NOW! Folyamide Resin Suspenoids Available in CARLOAD QUANTITIES

Now you can have as much of this easy-to-use, heat seal coating—Polyamide Resin Suspenoid—as you need! Several types are readily available in 5 gallon to carload lots.

A few of the advantages offered by Polyamide Resin Suspenoids are:

- Heat-sealability
- Non-blocking characteristics
- Use of water as a carrier which lowers cost, eliminates odor and keeps it highly fluid.

And after fusion,

- Ability to adhere to many types of surfaces
- Water and water vapor resistance
- Grease and oil resistance
- High gloss

Polyamide Resin Suspenoids have proved themselves as heat seal adhesives and show promise in wet stick adhesives, binders, and in coatings for papers, textiles, leathers, metals and many other materials.

Polyamide Resin may be the answer to *your* problem. Write now for information on samples. Use the handy coupon.

GENERAL MILLS, INC.
Research Laboratories, Dep't. NP2
2010 East Hennepin Ave.
Minneapolis 13, Minnesota

Please send me your Polyamide Resin Suspenoid data sheet . . . containing prices and information on samples.

Name _____

Company _____

Address _____

City _____ State _____

When inquiring check CP 6901
on handy form, pgs. 2-3

NEW SOLUTIONS of processing problems

burned out of the sand — and contain such materials as coal and coal tar pitch.

Incoming materials are ground in hammer mills, and are conveyed to gyrating screens on the top floor of the three-story (including basement) structure. If blending is desired, this is accomplished immediately after grinding. Oversize from the screens is returned for regrinding. Underflow (all minus 100 mesh) flows to one of two large storage hoppers. Material is packaged from these hoppers by means of two Model 1-5 Stoker bag packers.

The company installed these packers slightly over two years ago after having difficulty with the packers they were using at that time. Main trouble was that the old packaging system could not keep up with the rest of the process. The Stoker packers are plenty fast: they are running more than 100 hundred-pound bags per hour, and have been up to 120 maximum. Reports are that no serious trouble has developed in the machines since they were installed, even at this pace.

The Model 1-5 is shown in Figure 1. Valve bags are clamped onto the filling nozzle by the hand-operated lever in the front of the machine. Weight is set on scale beam under the unit. Adjustable counter-balance on the scale

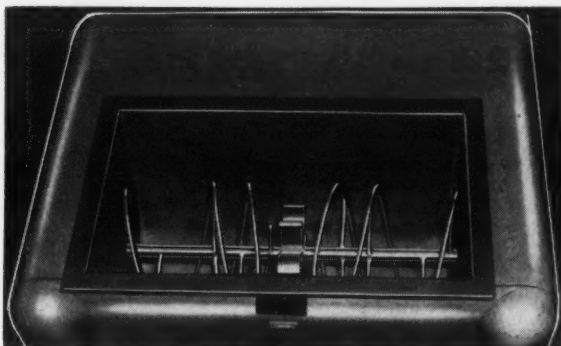


Figure 2 — Bridging is prevented by ribbon agitator in hopper of packer

beam operates a microswitch which shuts off current and sets a solenoid brake on feed screw when desired weight is reached. This feature eliminates spill-over and dribble. Ribbon agitator (Figure 2) eliminates bridging in hopper.

(Packer is product of H. L. Stoker Co., Dept. CP, 111 S. College Ave., Claremont, Calif. . . . or for more information check CP 6902 on handy form, pages 2 and 3.

Resumé of services offered by British engineering firm

A brief outline is presented in 16 pages of the services offered by this British company. In the main, their activities are concerned with designing, developing and building oil refineries and plants for the production of chemicals from oil and other raw materials. Economic evaluation is part of their program.

Short descriptive paragraphs and accompanying photographs of facilities and installed equipment outline the following aspects of company's work: research, development, planning, process design, fabrication and construction and operation. Other activities include design and construction of air and gas-separation plants, workshop service and purchasing and consulting. "Petrocarbon Services" is issued by Petrocarbon Limited, Dept. CP, 170, Piccadilly, London W1, England. When inquiring check CP 6903 on handy form, pages 2 & 3.

Good Processes Too Often Breed Bad Fires!

CARDOX

Originated

LOW PRESSURE CO₂ SYSTEMS*

to Lick Tough Fire Problems

• Volatile gases and liquids at high temperatures and pressures, with complex control systems—flammables stored in huge quantities—these and many other factors have created fire problems unknown a few years ago. Yesterday's fire protection may be dangerously inadequate today.

CARDOX pioneered low pressure carbon dioxide systems and mobile units to meet just such conditions. CARDOX Low Pressure CO₂, applied as easily in tons as in pounds, extinguishes fires often uncontrollable by other means—causes no extinguishment damage. It may be used to protect one hazard or *all* the critical hazards in a plant. Millions of dollars in research—decades of experience condensed by war and high priority projects into a dozen years—have enabled CARDOX to save industry uncountable fire losses.

Let us analyze *your* fire hazards. Our survey costs you nothing—but it may save you from crippling property damage and production stoppage. Write for this survey today.

Low Pressure Carbon Dioxide fire extinguishing systems were researched, pioneered, perfected and patented by CARDOX.

Thousands of installations have been made in the nation's leading corporations.

First installation was made in 1939.

Approved by Underwriters' Laboratories, 1940-1941—Factory Mutual Laboratories 1942.

CARDOX CORPORATION

* Cardox Low Pressure Carbon Dioxide Systems and Equipment are covered by U.S. and Foreign patents issued and pending.

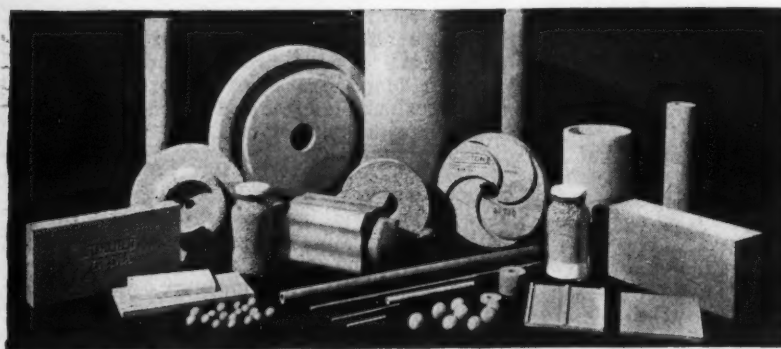
BELL BUILDING • CHICAGO 1, ILLINOIS • Offices in Principal Cities

When inquiring check CP 6904 on handy form, pgs. 2-3

Amazing Properties of New Norton *Fused Stabilized Zirconia* Permit Technical Advances in Processing

None other like it! No other refractory offers such an unusual combination of properties as new Norton Fused Stabilized Zirconia.

Its resistance to high temperature—its low thermal conductivity, despite its relatively heavy weight—its great strength at elevated temperatures—its resistance to oxidizing and reducing atmospheres at high temperatures—its chemical inertness—and its amazing electrical resistivity all combine to make a refractory that promises revolutionary advances in the processing field.



Some of the many refractory shapes made of Norton Fused Stabilized Zirconia are pictured here.

For Metal Melting

For processing precious metals in high frequency induction furnaces, Norton Fused Stabilized Zirconia crucibles or cement linings are ideal because metal does not wet them. This means that you can use the same furnace interchangeably without contamination of different alloys. What's more, Fused Stabilized Zirconia permits 100% recovery of melt from furnace linings. And you can depend on it for long life. It is unaffected by operating tempera-

tures from 3200° to 3600° F. in metal melting furnaces.

For processing ferrous alloys, too, the non-wetting property of Norton Fused Stabilized Zirconia permits its use in many pouring and melting operations.

For Chemical Processing

Fused Stabilized Zirconia is first choice on operations where excellent insulating and refractory properties are required, such as burner tunnels and furnace linings in combustion chambers. It withstands temperatures as high as 4500° F. In addition to its high temperature resistance, its low specific heat and low conductivity make it profitable on certain gas synthesis operations. Its chemical inertness also makes it valuable on certain types of processing where this property is important.

For Ceramics

Fused Stabilized Zirconia is highly recommended as setter tile for firing ceramic bodies such as barium titanate dielectrics and piezoelectrics, and some ferro magnetics. It does not react with or discolor ware. And its long life and thermal shock resistance make it particularly desirable for lining high temperature kilns and for fired shapes and grain in insulating all types of furnaces. It replaces carbon products in neutral and oxidizing atmospheres and is preferred for thermal insulation in molybdenum and platinum wound furnaces.

Write for further information

For complete data on further applications and detailed description of the new Norton Fused Stabilized Zirconia, ask your nearby Norton representative for Form 1409, or send coupon below.

NORTON COMPANY

568 New Bond Street, Worcester 6, Mass.

Gentlemen:

Please send me without obligation Form 1409 describing Norton Fused Stabilized Zirconia. I'm interested in investigating its use for:

- ☐ Lining Furnaces or Reactors ☐ Batts for Firing Titanates
☐ Metal Melting ☐ Electric Heater Elements
☐ Thermal Insulation (Other applications).....

Name.....

Title.....

Company.....

Address.....

City..... Zone..... State.....



Special REFRACTORIES

Making better products to make other products better

Canadian Representative
A. P. GREEN FIRE BRICK CO., Ltd. TORONTO, ONTARIO

NEW SOLUTIONS of processing problems

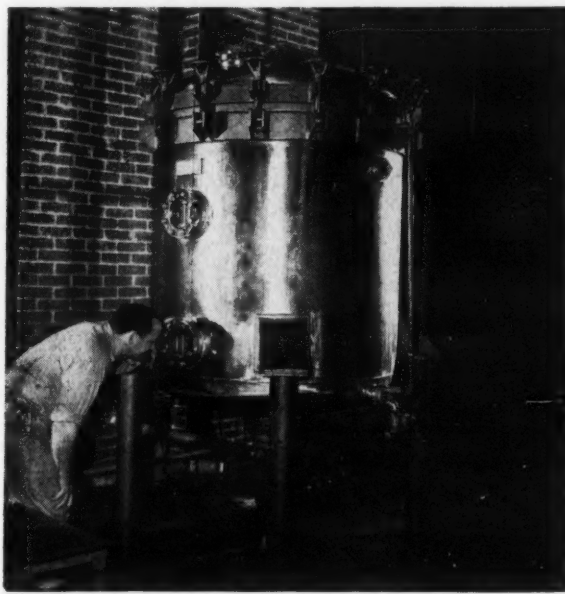
New way of filtering crystals and redissolving saves plant \$10,000 per year...

hot water is sent through filter to dissolve cake; recrystallization step follows

Problem: Filtering and subsequent recrystallization of crystals of an industrial chemical by Heyden Chemical Corporation, at one of its New Jersey plants, required a substantial amount of hand labor. Filtration was accomplished in an all-aluminum filter having 900 sq ft of filter area. About 40 cu ft of cake was built up for each filter load; then the unit was opened, cleaned (including washing of cloths), and re-assembled.

Following this, the practice was to load the cake into a tank of hot water where it was dissolved to form an almost saturated solution. In subsequent steps, the chemical was recrystallized, leaving impurities in the mother liquor.

Solution: A Niagara (pressure-leaf) filter is now being used. Not only does this unit serve as a filter, but the cake is also dissolved in it by circulating hot water through after the cake has been built up. This



Niagara filter used by Heyden in recrystallization of industrial chemical. Ports permit observation of cake build-up

is a relatively unique application for this type of filter, since it is essentially a polishing filter for use where the liquid is the valuable component and the cake is discarded. Here, the opposite is the case. Naturally, filter aid cannot be used when the filter is employed in this manner.

Filter is a standard Niagara Series 48, Model 510-28, in Type 304 stainless steel. Screens are used as the filter medium, without cloths. The crystals build up on the screens almost immediately, and recovery is 100%. Feed contains about 8% by volume of crystals. Cake capacity of filter is 30 cu ft. When capacity is reached, cake thickness is 11/16 to 3/4", and pressure is 40 to 45 psi.

Filtration is started by recirculating filtrate back to feed tank until it is clear. As said before, clarity is obtained almost immediately. Filtrate is then diverted

CHEMICAL PROCESSING

When inquiring check CP 6905 on handy form, pgs. 2-3

NEW SOLUTIONS of processing problems

to mother liquor tank and filtration continued until level in feed tank has been drawn down enough to indicate (by operating experience) that cake in filter amounts to a little less than the filter's capacity of 30 cu ft.

Then, the crystal-carrying liquor in the lines and in the filter itself (latter is called the liquid "heel") is circulated through the filter leaves for about 10 or 15 minutes to clear it up. During this operation, the feed tank is short-circuited. Finally, all crystals in the batch are on the leaves and the liquid heel is virtually clear. The heel is drained out of the filter, leaving cake on the leave.

Crystals are then dissolved from the leaves by running pre-determined amount of hot water through the filter. Outlet stream is sent to recrystallization steps that follow.

Results: Estimates are that yearly savings in labor, cloth replacement and filter repair amount to about \$10,000. There is actually no cleaning time involved in the new process; the filter does not even have to be opened. The whole operation is handled by one man.

Each filter load of 30 cu ft is handled in less than two hours. Of this two hours, dissolving uses one to one and a half hours. A maximum of three hours total would be allowable to meet production requirements of the rest of the process.

Source: Niagara Filter Corporation, Dept. CP, 3080 Main St., Buffalo 14, N. Y. . . or for more information check CP 6906 on handy form, pages 2 and 3.

Protection of big machinery in transit and storage with plastic shrouds . . .

necessary that material withstand wind-whipping on flatcar shipments and out-of-doors storage

Plastic "coveralls" of vinyl chloride for the protection of heavy machinery as it moves from war storage depots to fill production schedules are a recent development initiated by the U.S. Army Ordnance Corps. The coverings provide effective and economical protection for big machinery during periods of exposure.

Specifications demanded that the material retain its original properties under outdoor exposure and service conditions and not become brittle and crack in sub-zero temperatures. Also, it was necessary that this material withstand constant wind-whipping on open flatcar shipments and temporary out-of-doors storage. Vinyl chloride plastic of 0.008 inch thickness was the product selected for the job.

In conjunction with the National Transparent Plastics Corp. and the Plastics Division of Monsanto Chemical Co., the Ordnance Corps developed about 50 different sizes of coverings. A general conforming envelope type was designed to meet the many sizes and shapes of machinery involved. Coverings include carefully controlled electric welds, reinforcements at critical points of heavy strain and properly located tie-down grommets. Incorporation of a volatile type corrosion inhibitor prevents rusting even though moisture from condensation settles out under the shroud. This inhibitor builds up a free and continuously recurring atmosphere under the shroud as it volatilizes. The application of this additional protective agent was contributed largely by the Marvellum Paper Company.

(Information received from Plastics Division, Monsanto Chemical Company, Dept. CP, Springfield, Mass.)

See Louisville for CREATIVE DRYING ENGINEERING

PRODUCTION WILL BE UP 150%—COSTS DOWN $\frac{2}{3}$'s
WITH THIS NEW LOUISVILLE DRYER

**KNOW
THE RESULTS
before you buy!**



OLD DRYING PROCESS

Installed Cost	\$100,000
Annual Production (tons).....	10,000
Drying Cost Per Ton.....	\$ 3.11
Space Occupied.....	1,900 sq. ft.

PRE-DETERMINED Louisville Dryer Costs

Installed Cost.....	\$ 95,000
Annual Production (tons).....	25,000
Drying Cost Per Ton.....	\$ 1.04
Space Occupied.....	1,000 sq. ft.

Ask for new treatise on subject
of rotary dryers.

Other General American Equipment:
Turbo-Mixers, Evaporators, Dewaterers,
Towers, Tanks, Bins, Filters,
Pressure Vessels



PROBLEM: manufacturer wanted to improve drying operation.
Costs high, production low.

SOLUTION: manufacturer called in Louisville engineers.
These engineers started the Louisville method for pre-determining results . . . and for fitting the dryer to the job.

- Step 1. Louisville engineers completely surveyed plant operations and previous drying methods.
- Step 2. Recommended dryer design was checked in Louisville laboratory in actual drying test.
- Step 3. A double check with larger pilot plant equipment actually installed in customer's plant.
- Step 4. All factors determined and solved, full scale drying equipment was fabricated.
- Step 5. Final installation will be checked for mechanical perfection and drying efficiency to insure anticipated results and purchaser's satisfaction.

SUGGESTION: Why not call in a Louisville engineer to look over your drying operation? There's no obligation . . . and the results may pay big dividends.

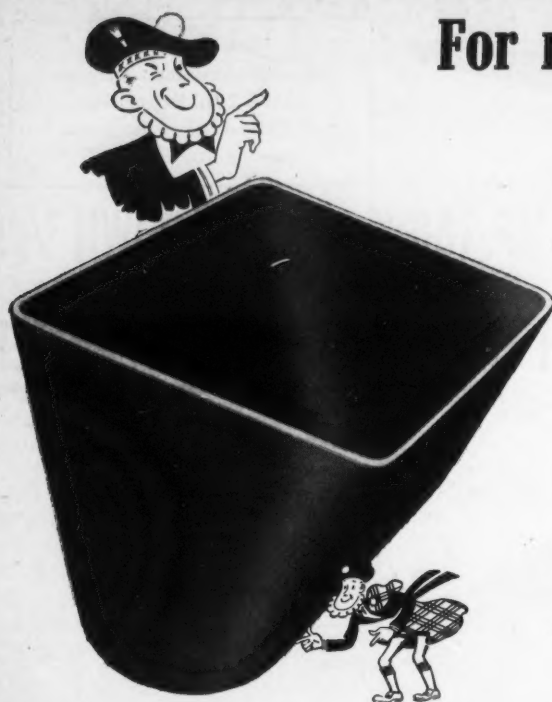
LOUISVILLE DRYING MACHINERY UNIT

Over 50 years of creative drying engineering

GENERAL AMERICAN TRANSPORTATION CORPORATION

Dryer Sales Office: 139 South Fourth Street, Louisville 2, Kentucky • General Offices: 135 South LaSalle Street, Chicago 90, Illinois • In Canada: Canadian Locomotive Company, Ltd., Kingston, Ontario
OFFICES IN ALL PRINCIPAL CITIES

When inquiring check CP 6907 on handy form, pgs. 2-3



For rugged, 3-shift service ... specify LINK-BELT Cast Buckets

You get extra dividends in longer life with Link-Belt Cast Buckets —

- Abrasion, corrosion and tough usage meet their match in top-grade Link-Belt malleable iron or Promal (the stronger, longer-wearing metal).
- Friction and wear are minimized by smooth, seamless surface.
- Corners are reinforced for added strength.

Equally important, accurate balance and advanced design give you the proper filling ... clean discharge.

Link-Belt builds all sizes in six different styles ... for either chain or belt mounting. Complete L-B line also includes steel buckets of various designs. The next time you replace your elevator buckets, call your Link-Belt representative for all the facts.

LINK-BELT COMPANY: Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Springs (South Africa). Offices, Factory Branch Stores and Distributors in principal cities.

12,518

LINK-BELT
CAST ELEVATOR BUCKETS

When inquiring check CP 6908 on handy form, pgs. 2-3

MIGHTY IMPORTANT "ACCESSORIES"



FLUSH-BOTTOM VALVES

... Flush-type plug valves are available in all commercial sizes. Made of materials adaptable to corrosive or non-corrosive conditions. Can be specially designed for critical pressures, for hand-wheel or bevel-gear operation.

Men who work with high-temperature, high-pressure equipment appreciate the attention Blaw-Knox gives to every detail of design and fabrication of pressure vessels. Design features exceed ASME and State requirements, assuring a longer useful life for your investment.

Send for Blaw-Knox Bulletin No. 2355

AGITATORS

Many types, each designed to provide strong sweeping motion at heating surface and turbulence of kettle's contents.

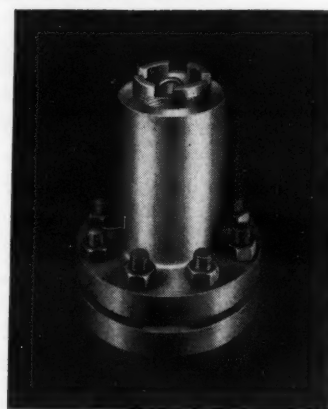


PROCESS EQUIPMENT DEPARTMENT
BLAW-KNOX
DIVISION OF BLAW-KNOX COMPANY

2076 FARMERS BANK BLDG., PITTSBURGH 22, PA.

Other Offices in Principal Cities

When inquiring check CP 6909 on handy form, pgs. 2-3



HANDHOLES-MANWAYS

... are of quick-opening design in standard sizes complete with attachments for welding or bolting to existing kettles. The materials utilized suit operating conditions for low, medium, or high pressure.

NEW SOLUTIONS of processing problems

Meter reading accurate after elimination of pulsation ...

after installation of pulsation snubbers, leaks were found and material balances came into line

Problem: An installation at a large Midwest petroleum company included an absorber, two compressors, and piping to force gas underground in order to maintain well pressure in the field. Meters were installed at the output of the absorber and at each of the input wells. Material balances produced erratic results with an apparent loss as high as 35% between these units.

Solution: After considerable investigation of metering procedures which had been used, it was decided to install meters on each of the compressor output lines. Since these meters would have to be within 200' of the compressors, tandem snubbers were planned for the line.

Snubbers eliminate surging due to pulsating flow of compressible fluids in pipelines. Originally they had been developed to reduce the amount of noise released by open systems to the atmosphere. Subsequent modification has resulted in units which, over a wide range of pressures, will suppress oscillation or forced pulsation of the fluid. Due to the fact that much of the oscillation in any case may be at an unpredictable frequency, the snubber is "untuned" — it acts effectively on all frequencies. Another important effect of "untuned" snubbing is that since no standing waves develop in properly installed lines, the location of the snubbers is not critical. In order to obtain the maximum amount of data, snubbers and meter were installed in one pipeline and the meter alone installed in the other.

Results: After a few days of operation it was determined that the snubbers prevented considerable pulsation on the chart and the second set of snubbers were installed.

With the completion of the installation it was found that while one of the new meters checked with the meters at the well input, the second new meter showed considerable more gas passing than was registered at its wells. Inspection of the lines disclosed several small leaks which were repaired. After these repairs, both new meters agreed closely with well input readings. Plant engineers now agree that the well input meters are, and probably have been, registering correctly. In addition to settling this question, the check between compressor meters and well meters of either system reveals any leaks which may develop in continuing operation.

Source: Snubber installation was designed and installed by Burgess-Manning Company, Dept. CP, Libertyville, Ill. ... or for more information check CP 6910 on handy form, pages 2 and 3.

Applications of Infrared to product control

Specific applications of infrared analysis to product control problems are described in this 8-page illustrated booklet. It explains in simple language how infrared works and its adaptability to quantitative and qualitative test procedures. Sample spectrums of polyethylene and nylon are given. Photographs show equipment in use at three different plant installations. Brief specifications are outlined for three instrument models. "Product Control by Infrared Analysis" is issued by The Perkin-Elmer Corp., Dept. CP, Norwalk, Conn. When inquiring specify CP 6911 on handy form, pages 2 and 3.

CHEMICAL PROCESSING

NEW SOLUTIONS

Acid wash stops deposit of calciferous material in brewery vats . . .

mild chemical and germicidal action makes gluconic acid safe

Problem: Every time a batch of beer is brewed, small amounts of calcium oxalate, proteins, and resins deposit on the vat walls. As these deposits accumulate they form a hard stone which is an ideal medium for fostering bacteria growth — promoting offensive tastes and odors in the beer.

Cleaning this stone from the vats is dangerous, time-consuming and costly. Corrosion of the equipment in cleaning is a problem since the stone only yields to chemicals like sulfuric acid and caustic soda.

Solution: Gluconic acid treatment is aimed at preventing, rather than removing beerstone. Starting with a set of equipment which has been thoroughly cleaned of old deposits, and washed down with water, the walls are washed with a 3-5% solution of gluconic acid and allowed to stand with the acid solution on them for one hour. This treatment is followed up by a second water rinse just before charging.

After walls have been once cleaned in this way, all that is required is a rinsing with water, gluconic acid, then water again between various charges.

The mild acid action helps to rid the walls of the last traces of the old stone and inhibits growth of micro-organisms while vat is standing idle between uses.

The acid is not dangerous even if it should inadvertently get into the beer.

Results: Formation of beerstone deposits and consequent difficult cleaning are eliminated. Chances of contamination of the beer by bacteria, wild yeasts, etc., are reduced, improving beer quality.

Source: The light brown, 50% gluconic acid (sp gr 1.24) is manufactured and distributed by Chas. Pfizer and Co., Inc., Dept. CP, 630 Flushing Ave., Brooklyn 6, N. Y. . . . or for more information check CP 6912 on handy form, pages 2 and 3.



For more information on product at right, specify CP 6913 . . . see information request blank between pages 2-3.



WELDING FITTINGS ON YOUR MIND

It will pay you to think of Midwest whenever you think of welding fittings. For example: the variety of elbows offered only by Midwest provides greater latitude in piping design and permits improvements and economies not otherwise possible.



Same radius as ASA but tangent equal to 25% of nominal pipe size on each end. Saves pipe, layout and welding time. Costs no more than ASA. Sizes to 24".



Dimensions conform to applicable size range of American Standard for Butt-Welding Fittings, ASA B16.9. Tolerances much less than allowable. Sizes to 26".



Recommended where space limitations do not permit use of "Long Tangent" or ASA Elbows. Sizes to 30".



Takes the place of a straight size elbow and a reducer. Eliminates one weld, reduces pressure drop, easier to insulate. Sizes to 12", reductions to half size.

4580

MIDWEST

PIPING & SUPPLY CO., Inc.

Main Office: 1450 South Second Street, St. Louis 4, Mo.

Plants: St. Louis, Passaic, Los Angeles and Boston

Sales Offices: New York 7—30 Church St. • Chicago 3—79 West Monroe St.
Los Angeles 33—520 Anderson St. • Houston 2—1213 Capitol Ave.
Tulsa 3—224 Wright Bldg. • Boston 27—426 First St.

**Weaves
that
STOP
the Solids!**

NEWARK
ACCURACY

Page 20

NEW SOLUTIONS of processing problems

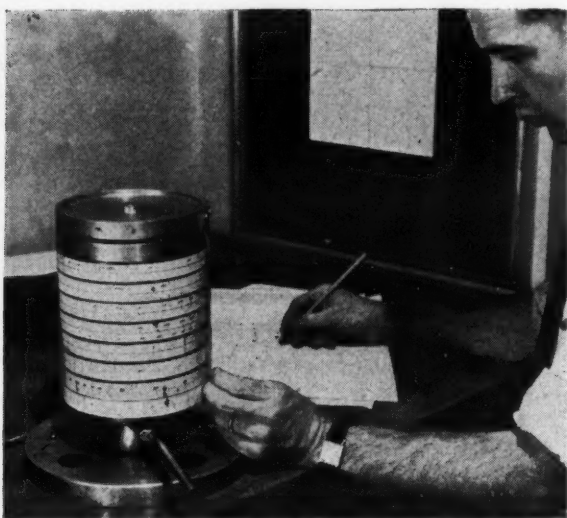
rates prescribed by the battery manufacturer. Bulletin presents a table of specifications on four models of the charger with such data as: amp-hr capacity, charging time, and motor hp. Bulletin 11-220 is issued by The Electric Products Co., Dept. CP, 1725 Clarkstone Road, Cleveland 12, Ohio. When inquiring specify CP 6917 on handy form, pages 2 and 3.

Cylindrical calculator unifies procedure in computing spectro-analysis . . .

home-made gadget consists of custom drawn scales which are mounted on edges of revolving discs

Problem: A lube-oil analysis laboratory found itself with hundreds of spectrographic samples to run each month. Densitometer tests of a standard photo spectrum compared to spectrums of lube-oil samples required density calibration and analytical scales for certain common elements in the spectrum. Lab technicians were not satisfied with various commercial calculating tables or rules, which proved too bulky and not fast enough. So they designed their own.

Solution: They built the various scales for each element, a straight 2-cycle log scale, and film calibration curves on a series of round aluminum discs, supported with a vertical shaft running through their centers. The



Special "slide-rule" developed for spectrographic analysis

aluminum discs are 21" in circumference, and about 1-1/2" thick. Scales are drawn on drafting paper or on plastic, then taped to the edges of the discs. Discs are set on the shaft, which is machined with steps to separate the various elements of this unique slide-rule.

The lab's cylindrical rule has 8 discs, two spares at the top. From bottom to top they contain: 1) straight 2 cycle log scale; 2) linear scale of film calibration curve; 3) straight 2 cycle log scale; 4), 5), 6), 7), and 8) analytical scales, one for each element which the lab seeks to find in the lube-oil spectrum.

A lucite rider lines up the various discs, makes reading and comparisons easier.

Results: An assistant chief chemist at the labs says that calibration time has been drastically cut. The round scale is compact, fits a desk top and is a handy, easy-to-use tool, a vital adjunct to spectrographic analysis.



Cutaway shows simple, rugged construction of Link-Belt Fluid Drive.

LINK-BELT Electrofluid Drive

with constant

CUSHION ACTION



AS EFFICIENT—as modern as the automatic transmission in today's automobile. Link-Belt Electrofluid Drive constantly provides a smooth flow of cushioned, shock-free power transmission. Ideal for loads of high inertia, repetitive shock or high starting torque type.

Here's how constant "CUSHION ACTION" reduces wear—cuts maintenance—and often lowers initial investment.

- Both motor and driven machine last longer because constant CUSHION ACTION protects them from overload and shock—torque, even under stall conditions, is limited by fluid drive capacity.

- On high-inertia loads requiring high starting torque, CUSHION ACTION permits motor to attain speed producing maximum torque before fluid drive out-

put shaft revolves—often eliminating need for special or oversize motors.

- Because motor reaches 70% of full-load speed before engaging load, CUSHION ACTION starting current is less than half of normal, and power factor stays high.

- Maintenance of trouble-free Electrofluid Drives is limited to an occasional inspection of oil level.

What's more, you get all the exclusive advantages of constant CUSHION ACTION while maintaining the high efficiency of your existing drive. Book 2485 has complete information on five types of Link-Belt Fluid Drives—Electrofluid Drive, Electrofluid Gearmotor, Fluid Drive, Fluid Gear Drive and Fluid Coupling Drive.

LINK-BELT FLUID DRIVES

LINK-BELT COMPANY: Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 3, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Springs (South Africa). Offices, Factory Branch Stores and Distributors in principal cities.

12,318

When inquiring check CP 6918 on handy form, pgs. 2-3



Here's a "quick look" at the new developments that will be seen at the Twenty-Third Exposition of Chemical Industries, Grand Central Palace, Nov. 26th to Dec. 1st, 1951. The Editors asked all exhibitors for brief descriptions of new products they will present at "The Show". Here is a digest of all such information received prior to closing date of this issue of **CHEMICAL PROCESSING**.

New Developments to be seen at the **CHEMICAL EXPOSITION – A Preview**

Allis-Chalmers Manufacturing Co., Milwaukee 1, Wis.

BEARING SYSTEM OF PUMP

Cutaway of pump geared down to show operation of oil-lubricated bearing system will be exhibited. Liquid end of pump is self-contained unit, and product is available in variety of materials and capacities to 1200 gpm at heads to 250 ft and temperatures to 500°F.

The Louis Allis Co., Milwaukee 7, Wis.

ADJUSTABLE SPEED DRIVE

Select-A-Spede components include a self-ventilated cabinet type power unit, an operator's control station, and a direct current driving motor. This unit provides for the adjustment of drive motor speeds over a wide range. Operating from alternating current circuits, it incorporates a magnetic amplifier to effect changes in the motor field strength and consequently the motor speed.

Alloy Steel Products Co., New York 1, N.Y.

CORROSION RESISTANT VALVES

A complete line of corrosion and contamination resisting valves in a wide variety of stainless steels and alloys.

Alsop Engineering Corp., Milldale, Conn.

MIXING TANK

Stainless steel mixing tank with adjustable swivel mixer bracket for use with any portable high or low speed mixer. Offers rapid adjustment to any desired mixing position for maximum efficiency. Hand bar locking device fixes the mixer in any operation position without wrenches.

Capacity of these open type tanks is rated at values from 5 to 300 gallons.

Tolhurst Centrifugals Division, American Machine and Metals, Inc., East Moline, Ill.

CENTER-SLUNG CENTRIFUGALS

Equipment to be exhibited includes: 26" Center-Slung Centrifugal with stainless steel basket and stainless steel case and extra baskets, 20 and 24" in diameter; 40" centrifugal with rubber covered basket and rubber lined case; 48" centrifugal with stainless steel basket and case; and a 12" laboratory centrifugal with stainless steel basket and case.

The last named product, requiring only 8 1/8 x 27 1/2" of floor space, is still large enough a unit to extract batches of different types of materials in chemical or pharmaceutical plants.

American Polymer Corp., Peabody, Mass.

ACRYLIC COPOLYMERS

In this group, 14 compounds will be shown whose applications include adhesive bases, leather finishes, heat-resistant enamels, greaseproof coatings, waterproof coatings and masking tape adhesives.

POLYACRYLIC ACID

Featuring excellent adhesion to nylon, the product finds outlet as a sizing material.

VINYL ACETATE COPOLYMERS

Product is a milk-white emulsion having a viscosity of 1000-1500 cp and demonstrates water resistance and excellent aging characteristics.

American Wheelabrator & Equipment Corp., Mishawaka, Ind.

DUST COLLECTOR

A cutaway unit of actual Model 112 KD dust collector for either product or nuisance dusts and fumes will be exhibited. The unit is often used as a piece of processing equipment where the particle size of the material is so small that other methods of recovery are imprac-

tical. In industries where products are toxic, the collector ventilates grinding, cutting and similar operations to keep the atmosphere dust free. It is stated that a collection efficiency of 98% or greater by weight is possible.

Ampco Metal, Inc., Milwaukee 46, Wis.

PIPE & FITTINGS

Pipe, tubes, fittings and plug cocks are the items to be shown and which are designated for application under conditions where acetic acid, sulfuric acid, salt water, harbor waters, etc., are the problems.

H. Reeve Angel & Co., Inc., 52 Duane St., New York 7, N.Y.

CHROMATOGRAPHY MEDIUM

Whatman ashless cellulose powder for column chromatographic separation of amino acids, sugars, etc. Material is free from metallic ions and packs so as to prevent channeling. Although data has not been released, it is reported that the powder may have been used for separation of isotopes.

Ansul Chemical Co., Marinette, Wis.

DIMETHOXY TETRAETHYLENE GLYCOL

Material is a solvent suitable for Grignard and sodium condensation reaction and a selective solvent for acetylene. Miscible with water and organic solvents, it has no active hydrogen atom. Has been tested as an additive to hydrocarbon diesel fuels to reduce the auto-ignition temp of the fuel for cold starts.

Barco Manufacturing Co., 1801 Winnemac Ave., Chicago 40, Ill.

ROTARY JOINTS

Designed for temperatures up to 450°F the joint will handle 150 psi at 500 rpm in steam service or 200 psi at 750 rpm in hydraulic service. Ball bearings carry both radial and end thrusts. Feature of design is the short time required to change packings.

Barnstead Still & Sterilizer Co., Forest Hills, Boston 31, Mass.

WATER PURIFIERS

Water demineralizers and stills will be demonstrated and also a 30 second purity test for distilled and demineralized water. Other equipment to be displayed includes autoclaves and a water bath.

Barrett-Cravens Co., 4613 S. Western Blvd., Chicago 9, Ill.

MATERIALS HANDLING EQUIPMENT

Exhibit will include Barrett Power Ox Hi-Lift Telescopic Tilting Fork Lift Truck. Also lift trucks, electric trucks, Steeg skids, portable elevators, storage racks, pallet handling equipment, the Nifty Lifter System, and other specialties. (Continued on next page)



ZEPHYRWELD® WELDING FITTINGS . . . SS Type 304-347-316—Inconel and other SS analyses. Fabricated in O.D. Pipe and Tube Size, 1/2 in. thru 24 in.—ells, tees, adapters, etc. Covered in Catalog 748.



RECESSED-END FITTINGS . . . Stainless Type 304-347-316. Low cost, light weight fittings for fast, simple soldering, brazing or socket welding. Sizes from 1/2 in. thru 24 in. Full line of elbows, tees, adapters, etc. Covered in Catalog 948.



CLAMP-TYPE CONICAL FITTINGS . . . requires only 1 simple ferrule, assures leak-tight joints thru sanitary Teflon gaskets. Fast, simple assembly and disassembly. Full line in sizes from 1 in. thru 4 in.



TRI-CLOVER



SANITARY TYPE FITTINGS . . . Stainless Steel and Tri-Alloy (Nickel Alloy), from 1 in. thru 4 in. O.D., full range of fitting types. Approved as meeting 3A Standards throughout, incorporating exclusive design features. Covered in Catalog 150-B.



CONICAL END FITTINGS . . . Stainless Type 316—Inconel and other SS analyses. Complete line, sizes from 1 in. thru 4 in. O.D. Features: Light weight—low cost—fast installation—leak tight—easily adapted to other fitting types. Covered in Catalog 848.

**. . . for the COMPLETE LINE* of
LOW-COST CORROSION-RESISTANT PIPING
. . . in both Tube O.D. and Pipe O.D. types**

Here you see five representative fitting types that go to make up the complete Tri-Clover line—all available from one source. Install these stainless steel or alloy products in your process lines and realize the advantages of increased production and lower maintenance cost. 32 years of specialized experience in solving corrosion piping problems can be yours by consulting our engineers.

Write for details, or see your nearest Jobber.



**TRI-ALLOY AND STAINLESS STEEL
SANITARY FITTINGS, VALVES,
PUMPS, TUBING, SPECIALTIES**

**FABRICATED STAINLESS STEEL
INDUSTRIAL FITTINGS AND
INDUSTRIAL PUMPS**

THE Complete LINE

***ALL FROM 1 SOURCE**

The COMPLETE Tri-Clover Line includes:

- Flared Tube Fittings (Koucentric)
- Tube O.D. Butt Weld Fittings (Zephyrweld)
- I.P.S. O.D. Sch. 5 and 10 Butt Weld Fittings (Zephyrweld)
- I.P.S. O.D. Sch. 40 and 80 Butt Weld Fittings
- Flanged Conical End Fittings (Tube O.D.)—1" Through 4"
- Industrial Recessed End Fittings (Tube O.D.)—1" Through 10"
- Screwed and Flanged Valves (Powell)
- Special Fabricating Facilities
- 3A Standard Sanitary Fittings and Valves (Stainless Steel and Tri-Alloy)
- All-Sanitary Magnetic Full-Flow Traps
- Centrifugal Pumps—Sanitary and Industrial
- Stainless Steel Tubing and Pipe—All Sizes and Analyses

(Inventories carried in distributors' stocks strategically located throughout the United States.)

CHEMICAL SHOW PREVIEW

(Continued from preceding page)

The C. O. Bartlett & Snow Co., Cleveland 5, Ohio

CALCINER

Pilot plant scale continuous indirect heat calciners to be displayed find application for activating crushed wood charcoal, reducing mineral high oxides to lower oxides, reducing metal oxides to metal and oxidizing organic materials at controlled rates. Both feeding and discharging of material are done by screw conveyors or rotary feeders so that there is no interchange of the gaseous atmosphere inside the retort and the room air outside it.

Beckman Instruments, Inc., South Pasadena, Calif.

INSTRUMENTS

Compact, portable, battery-operated Model N pH Meter which is rugged enough to be carried to process steps for testing. Control layout offers maximum convenience, and accuracy in routine testing is 0.1 pH unit. Careful technique gives an accuracy of 0.03 pH unit.

Model B Flame Photometry Attachment uses interchangeable burners for special purposes and fuels. When attached to Model B Spectrophotometer atomizer-burner combination gives accurate results in a great variety of analyses. Gauges attached to unit show fuel pressure for reproducibility.

Bemis Brothers Bag Co., 408 Pine St., St. Louis 2, Mo.

BAGS

Burlap, cotton, multiwall paper, and waterproof, paper-lined textile bags which protect contents against moisture loss or absorption, contamination and loss of aroma.

Black, Sivalls & Bryson, Inc., Tulsa 1, Okla.

LIQUID LEVEL CONTROLLERS & VALVES

Liquid level controller, type 887-1410, a recent development, will be featured along with a diaphragm control valve, bellows seal valve and safety heads.

Bramley Machinery Corp.

DUPLEX MIXER

Incorporating the principle of intermeshing paddles rotating at two different speeds, the unit finds application in mixing, kneading and dispersing for the plastic, rubber, ceramic, paint, printing ink and chemical processing industries.

Branson Instruments, Inc., 430 Fairfield Ave., Stamford, Conn.

THICKNESS and FLAW TESTERS

Nondestructive measurement of thickness or testing of laminar material from one side can be made with Audigage Testers. Thickness range from $\frac{1}{16}$ to 12" is

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ing nearly 250 different classifications of equipment, materials, supplies, and services for all chemical processing industries. In no other way can you get so much help on so many phases of industrial chemistry and chemical engineering in so little time.

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When inquiring check CP 6920 on handy form, pgs. 2-3

CHEMICAL SHOW PREVIEW

checked to within 3%. Flaw detector finds flaws in laminar material.

The Brush Development Co., Cleveland 14, Ohio

ULTRASONIC GENERATOR

Emulsions, dispersions, agglomerations, etc., can be treated with 250 RF watts by focusing action of Hypersonic Model BU-101-A. Transducer units have range from 400 to 1000 kc.

Builders-Providence, Inc., Providence 1, R.I.

CHLORINIZER

Chlorinizer apparatus uses a principle of visible measurement in metering the output of chlorine gas and is easily adapted to the automatic control of varying dosages at several points of application. It is a device for meeting the problem of slime control in cooling and process waters and offers reduced labor and chemical costs.

Burling Instrument Co., 5 Vose Ave., South Orange, N.J.

TEMPERATURE CONTROL and SAFETY DEVICES

Models available for control of pneumatic or electrical systems. Total composite range runs from minus 200° to 2000°F. Range of control effectiveness can be made as small as 5°F when operating at 1000°F. Actual control is very close due to modulating action of device.

Alloy Tube Div., The Carpenter Steel Co., Union, N.J.

SCHEDULE 5 PIPE

Lightweight stainless steel pipe is designed for working pressures of 200 psi in larger sizes and 150 psi in smaller sizes. Reduction in amount of metal used not only conserves stainless steel, but gives a larger effective capacity to pipe.

Central Scientific Co., Chicago 13, Ill.

LABORATORY APPARATUS

Show items include vacuum pumps for evacuating all types of systems and electronic tubes and electroanalyzers for the rapid quantitative separation of metals. Also, tensiometers to measure surface and interfacial tensions of liquids and an infrared-torsion moisture balance for moisture determinations in such products as foodstuffs, tobacco, foundry sands, detergents and hay.

Chase Equipment Corp., New York 3, N.Y.

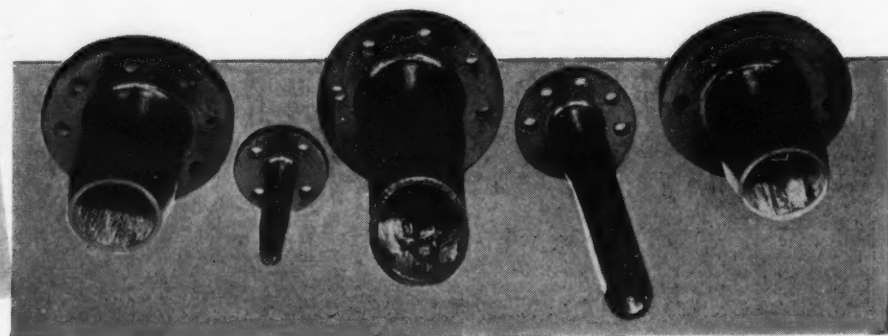
AMPOULE FILLING UNIT

Small, compact and requiring one operator, the unit performs sterile filling of drugs into ampoules, flushing with an inert gas and flame-sealing. The unit handles 1/2 to 20 cc ampoule sizes and at rates of 14 to 42 per minute.

(Continued on page 150)

Tailoring Process Units from Resistant Resin for Severe Corrosive Services

Modified phenolic can be cold-cast to yield specification pipe and fittings, valves, pumps, towers, and vessels



Special fittings cast from Chemplas modified phenolic resins as they appeared after 4 years of constant contact with aqueous hydrofluoric acid at strengths of 40 and 60% at temperatures of about 100°F. No distortion or corrosive attack is evident

SES: For application in severe corrosive service, contact parts of valves, centrifugal pumps, absorption towers, vessels, etc., are being cold-cast to specification from modified phenolic resins.

Features: Very satisfactory service has been demonstrated with ferric chloride, hydrochloric acid with organics, sulfuric acid, and with hydrofluoric acid. One application involved 60% hydrofluoric acid at elevated temperatures, where fittings, towers, and pumps of this resin showed no trace of corrosive attack after four years.

In another application involving a combination of sulfuric acid and hydrofluoric acid at 160°F, pumps made from this resin lasted 12 times as long as previously used corrosion resistant materials. Special header fittings for heat exchangers outlasted the best material previously used by 800 to 1000%.

In a special pumping problem involving low-strength sulfuric acid with some free chlorine at high temperature, six pumps of Chemplas resin gave satisfactory service for more than three years without serious corrosion attack. In still another case, fittings for plastic pipe in muriatic acid service gave two years' service without showing signs of attack.

Description: Chemplas is a modified phenolic resin with an inert carbon filler. It is resistant to virtually all but highly oxidizing acids. With certain modifications, it will withstand alkalis. Complete stability is exhibited up to 375°F, although a maximum operating temperature of 350°F is recommended as a safety measure. Maker reports that equipment made from Chemplas will withstand all atmospheric conditions. Physical properties of the resin are tabulated in accompanying table.

Pieces cast from Chemplas resin can be machined and threaded in the field and can be joined to one another, during installation, by cementing with the same resin as the parent pieces.

To enhance the mechanical and thermal shock resistant

Physical Properties

	Chemplas #1
Compressive Strength, psi	12,800
Tensile Strength, psi	5,480
Modulus of Elasticity, psi	5.8×10^5
Water Absorption, %	0.08
Specific Gravity	1.45
Coefficient of Thermal Expansion per °F	3.5×10^{-5}

properties of the equipment mentioned below, there has been developed a plastic impregnated glass cloth armor. In setting, this armor shrinks onto the equipment, producing an impervious covering, the strength of which approaches that of metals.

Armor also greatly reduces the possibility of fracture, thus insuring greater safety. If a crack should develop for any reason, the piece is completely held together by this armor, thus obviating serious damage to plant and personnel due to fire, explosion, and toxic fumes and liquids.

Pipe and Fittings: These can be furnished in the bell and spigot design in sizes up to 24" for liquids and gases near atmospheric pressure — acid drain lines, duct work, etc. For higher pressures, cemented-on flanged pipe is available. Here, pipe and fittings are equipped with special C. I. flanges cemented on to the Chemplas with an acid proof cement and painted with an acid resistant paint. Flanges and cement do not contact fluid being handled because the connection is made by bolting with a suitable gasket on the machined ends. Number of bolts and bolt circle corresponds to the 125# ASA standard. Flanged pipe and fittings are also available with hub ends and loose split metal flanges. In addition,

Materials

pipe and fittings can be armored with a resin impregnated glass cloth to increase physical strength.

Valves: Hills-McCanna diaphragm valves in sizes up to 8" are available along with plug cocks, check valves, and safety valves for use with the piping described in this article.

There is also available an entirely new type globe valve which can be used either for manual or diaphragm motor operation, and can further be adapted to a relief valve construction.

Centrifugal pumps: Pumps are constructed so that all parts contacting liquids pumped are Chemplas. Units are generally furnished with a simple mechanical seal, but are also available with standard stuffing box construction. Two designs are offered: unarmored and armored with glass cloth and resin. Impellers can be either closed or open.

Complete series of pumps are available ranging in size from 1 to 4" and with capacities up to 900 gpm and heads up to 90'.

Towers: These are available in a number of designs for absorption of gases and for liquid-gas and liquid-liquid interaction. Designs can be furnished utilizing the packed tower or bubble cap tower principles. Armored or unarmored construction can be utilized to meet specific service conditions. Flanged towers for pressure or vacuum applications make use of steel flanges on the outside of the tower sections as a means for joining. Bell and spigot towers for absorption or reaction of gases with liquids at atmospheric pressure are joined with asbestos runners and cement of a suitable nature poured or troweled into the bell. Bubble cap towers can be furnished in either flanged or bell and spigot design, and plates can be separate or integral with the section while the risers, caps, and downcomers are separate and screwed in place.

Vessels: Cylinder jars, rectangular tanks, trays, etc., in sizes up to 500 gal can be fabricated to specification.

CHEMICAL PROCESSING

If there are outlets on these vessels, they can be readily changed by using Chemplas cement.

Some of the other applications in which Chemplas has been tested include electrolytic cell covers, fans, agitators, headers, ejectors, nozzles, weighing and sample bottles.

Source: Fabricator is General Ceramics and Steatite Corporation, Chemical Equipment Division, Dept. CP, Keasbey, N. J. . . . or for more information check CP 6921 on handy form, pages 2 and 3.

Basic material is made by Pennsylvania Salt Manufacturing Company, Dept. CP, 1000 Widener Bldg., Philadelphia 7, Pa.

Paste Stabilizer Incorporates Readily in Vinyls During Cold or Hot Milling

Imparts excellent heat and light stability to polyvinyl chloride resins and their copolymers

USES: Heat and light stabilizer for polyvinyl chloride resins and their copolymers. Recommended for the calendaring of clear and pigmented films, fabric coatings, solvent solutions, organosol and plastisol dispersions. Also recommended for extrusion and injection molding, as well as for stabilization of monofilaments made of vinyl or vinylidene chloride.

Features: Original product was supplied as a powder that had to be formed into a paste before use. New product is supplied as a homogeneous paste that handles easily and incorporates readily during cold or hot milling on a 2-roll rubber mill, 3-roll paint mill, universal mixer, or during mastication in a Banbury.

Stabilization is evidenced by the following actions of the paste: 1) tends to improve the resistance of the resins themselves against the deteriorating action of heat and ultra-violet rays; and 2) serves as a satisfactory hydrochloric acid acceptor when the process of decomposition is initiated by heat and light.

Description: Stabelan G-1 stabilizer is a smooth, fine-particle-size paste that is composed of 100% active ingredients. Despite very limited solubility, it has a pronounced tendency to stay in suspension in ketone and aromatic hydrocarbons. It does not interfere with the heat sealing properties and adhesion of printing lacquers on cast or calendered films because need for plasticizers is reduced.

Stabilizer is compatible with all pigments commonly used with polychloride resins, and does not affect the shade of these pigments. It improves the aging and heat stability of organic and inorganic pigments, and minimizes the aging effects that pigments have on vinyls.

Industrial runs show that polyvinyl chloride resins incorporating G-1 can be processed at temperatures up to 350°F for producing highly transparent or pigmented films. Stabilizing action of the paste has proven efficient in nearly every possible combination with various resins, plasticizers, and lubricants. Recommended amount of

(Continued on page 30)



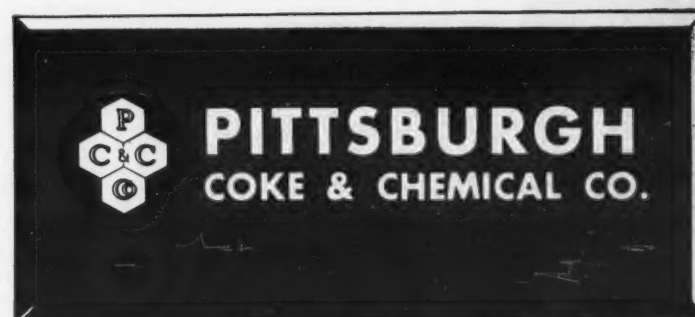
We're Particular about our PLASTICIZER "Prescriptions" too!

As a matter of fact, we probably go the old pharmacists *one better* when it comes to being exacting about making Pittsburgh PX Plasticizers. For, as a basic, integrated producer of coal chemicals—many of which are used by America's great plastics and rubber industries—we have the advantage of controlling the *quality and uniformity* of our plasticizers from coal to finished product . . . an advantage that assures *you* greater economy and ease of use in your plastics formulations.

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★ DiIsoOctyl Phthalate	PX-108
★ DiOctyl Phthalate	PX-138
★ DiIsoOctyl Adipate	PX-208
★ DiButyl Sebacate	PX-404
★ DiIsoOctyl Sebacate	PX-408
★ TetraHydroFurfuryl Oleate	PX-658
★ TriCresyl Phosphate	PX-917



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When inquiring check CP 6922 on handy form, pgs. 2-3



FOAM'S A FRAUD... KILL IT WITH DOW CORNING ANTIFOAM A

One part per million of Dow Corning Antifoam A kills foam during caustic soda concentration...

One part per million kills foam during synthetic varnish resin processing...

As little as 0.03 parts per million kills foam during tar evaporation...

And just three parts per million kills foam during strawberry jam concentration.

Odorless, tasteless, and relatively inert physiologically, Dow Corning Antifoam A is effective in a wider variety of foamers than any other material known—and in only trace quantities. Easy to introduce directly, in solvent solution, or even mixed with dry powders, it rapidly liquefies even the most violent and persistent foamers. That kind of efficiency has made it the most economical as well as the most versatile defoamer on the market.

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When inquiring check CP 6923 on handy form, pgs. 2-3

Page 28

Properties Imparted by Plasticizer Show Promise in Electrical Uses

Combines permanence, flame retardance, low temp flexibility with good electrical performance

USES: Use as plasticizer is indicated in sheeting, wire covering, shoe soles and other situations where material must stand severe flexing and stretching. It is compatible with polyvinyl chloride.

Features: Material has very low volatility. Chlorine content aids in making plastic flame retardant. Material plasticized with it also shows very good aging and electrical properties.

Description: MPS-500 is a stabilized chlorinated ester of a fatty acid. Chlorine content is controlled to give an optimum balance between compatibility and plasticizing efficiency. It is completely compatible, for example, with polyvinyl chloride in amounts up to 60 parts per hundred.

COMPATIBILITY of MPS-500

Acrylonitrile (nitrile type rubbers)	compatible
butadiene copolymers	compatible
Alkyds (glyptal)	compatible
Cellulose acetate	not compatible
Ethyl cellulose	compatible
Neoprene	compatible
Nitrocellulose	not compatible
Polyvinyl acetate	compatible
Polyvinyl butyral	not compatible
Polyvinyl chloride	compatible
Polystyrene	compatible

Boiling 50% caustic solution won't blister, raise liner on steel container...

spray-on, thermosetting coating-liner highly resistant to chemicals, mechanical abuse

Uses: Spray-type, thermosetting coating for lining steel containers.

Features: Chemically resistant to alkali, dilute mineral acids, chlorinated solvents, formaldehyde (36-38% aqueous), detergents, detergents combined with hydrocarbon solvents, fatty acids, and emulsions. Mechanically resistant to normal abuse in shipping and moving lined containers, not subject to shattering as are pure phenolics. Indications are that the liner is inert and should impart no toxic character to products.

Description: Synthetazine 100 (an epoxy resin) is a

Combining high values of tensile strength with low stiffness, the material has an action similar to tricresyl phosphate. Due to the chlorine content, it is possible to produce flame retardant compositions with improved low temperature flexibility, migration and other characteristics. MPS-500 is of special interest in electrical extrusion compounds. Not only does it confer good electrical properties, but the high strength, low temperature flexibility, and flame retardance needed for such uses as wire covering.

The low volatility, and hence high degree of permanence, in polyvinyl chloride stocks results in retention of physical properties on aging. Material prepared with MPS-500 shows little effect on aging in air, water, or hydrocarbons such as gasoline. However, due to the chlorine content there is a greater tendency toward discoloration in heat and light aging than with such plasticizers as dioctyl phthalate. Selection of stabilizers with MPS-500 is very important in this regard.

The plasticizer is known to contain alpha chlorine atoms which, under proper conditions, react with amino, amido, or hydroxy radicals. This means that stabilizers containing these groups should not be used. Several materials have been tested and found satisfactory for use with the plasticizer. In general lead stabilizers are recommended in view of their low cost, general acceptance and good performance. Manufacturer's Bulletin 35 gives details of satisfactory stabilizers.

Source: Manufactured by Hooker Electrochemical Co., Dept. CP, Niagara Falls, N.Y. . . . or for more information check CP 6924 on handy form, pages 2 and 3.

white coating which becomes cream-colored when properly cured. It is applied by spray over carefully cleaned (free of rust, grease, and dirt) cold-rolled or hot-rolled steel.

Two coats are recommended for a total dry film thickness of about 1.5 mils.

Curing schedule should be comparable to 15 min at 450°F, or 30 min at 400°F. When two coats are applied, first coat may be cured either 5 min at 450°F, or 10 min at 400°F.

If properly cured, maker reports coating will not crack when struck a hard blow with a ball peen hammer.

Following is indicative of chemical resistance of coating: a 1-hr immersion in boiling 50% caustic solution caused slight decrease in flexibility of the coating, but did not blister or lift it. This suggests possible alkali cleaning

of containers lined with Synthetazine 100 for re-use. Maker invites chemical manufacturers to submit their products for evaluating this coating as a container liner.

Source: Development of Synthetazine Protective Coatings, Inc., Dept. CP, 600 Fifth Ave., New York 20, N. Y. . . . or for more information check CP 6925 on handy form, pages 2 and 3.

**Serious fires can be prevented
by using non-flammable
hydraulic fluids . . .**

spray of water-based fluid doesn't ignite when hitting hot surfaces, flames or sparks

Problem: National Fire Protection Association records for last year include 13 losses in industrial plants — amounting to over a million dollars — caused by hydraulic oil operated equipment. Where hydraulic oils are used in equipment around furnaces, gas flames, molten metal, melting pots, welding machines or other sources of ignition, there is always potential danger of a serious fire.

Bursting hydraulic lines will quickly release, under high pressure, many gallons of highly inflammable oil. When this spray is ignited, it flares up and fire spreads very rapidly.

Solution: Many plants are using hydrolube fluids, developed by the Navy to meet their need for non-flammable hydraulic oils. "Ucon" brand hydrolubes are one type of these fluids. They consist mainly of water, and various glycols, together with other ingredients to protect against corrosion and to provide anti-wear properties, good lubricity, metal deactivation and additive solubility over a wide temperature range. They are not ignited, even as a 3000 psi spray, by hot metal surfaces, electric sparks, burning gasoline, engine exhaust gas, or oxy-acetylene flame.

Leakage loss of "Ucon" hydrolubes is quite low for this type of fluid. A recent analysis of consumption in an 18-month period showed that average loss from 35 die-casting machines was less than three gallons per month per machine. Important is the fact that "Ucon" hydrolubes have no deleterious effect on the various sealing and packing materials commonly used in industrial hydraulic systems.

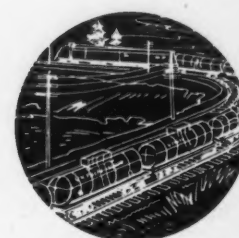
"Ucon" hydrolubes are relatively non-toxic and are water soluble. Spillage can be cleaned up with a wet cloth or by flushing down the drain with water.

Results: Use of "Ucon" hydrolubes has already prevented several serious fires and extensive plant damage. In one plant where the fluid was used in hydraulically operated combustion control equipment, molten slag was accidentally dumped on a plate floor under which were copper hydraulic lines. The hot slag pierced the floor and melted the copper lines, with the result that about 20 gallons of fluid were lost before the pumps could be shut off. If a flammable oil had been present in these lines, a serious fire would have occurred. Yet, with "Ucon" hydrolube, there was no fire.

What is even more important is that these hydrolubes create no fire hazard when sprayed on operators. At a die casting plant there was no fire when a hydraulic connection broke and released a quantity of the fluid and an operator who was drenched with the fluid was not injured. If a flammable oil had been used it is probable that a fire and serious injury to the workman would have resulted.

Source: "Ucon" brand hydrolubes specially developed for industrial use are products of Carbide and Carbon Chemicals Company, Dept. CP, 30 E. 42nd St., New York 17, N. Y. . . . or for more information check CP 6926 on handy form, pages 2 and 3.

OCTOBER, 1951



ONLY VICTOR GIVES YOU THIS UNIQUE ADVANTAGE!

If your company is a steady user of phosphates, Victor now gives you added assurance of a dependable supply of these important chemicals.

The main reason? Because only Victor is producing elemental phosphorus in 3 separate locations. This unique advantage has a 4-fold significance!

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- 3 separate man power regions!
- 3 separate sources of phosphate rock with almost unlimited reserves!
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Isn't a reliable source of supply a very important asset to your company? Then, it will pay you to learn more about Victor's service, and our ability to supply your requirements of phosphates, formates and oxalates.

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When inquiring check CP 6927 on handy form, pgs. 2-3



Buy
in the
area
of
economy

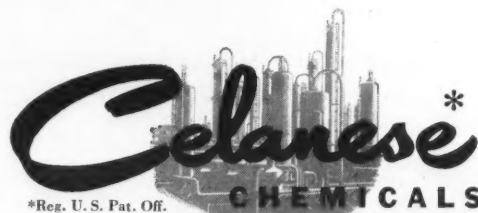
CELANESE* SOLVENT 601

Excellent performance and real production economy have established Celanese Solvent 601 as the most economical active solvent.

Compare Solvent 601 with the five solvents commonly used in the production of varnishes, lacquers, adhesives, and other nitrocellulose formulations. Solvent 601 supplies the rate of evaporation you require, yet it stays within the "area of economy."

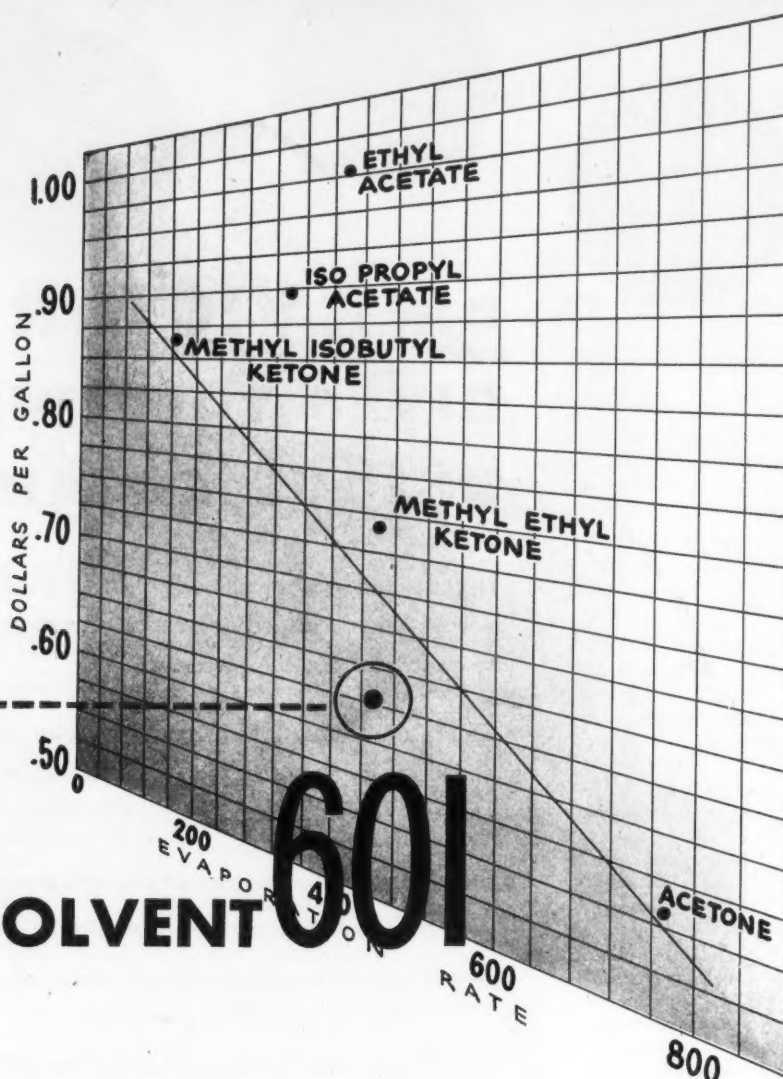
More and more manufacturers are taking advantage of the solvent balance offered by the combination of methyl ethyl ketone and cyclic oxides found in Solvent 601.

Investigate the usefulness of Celanese Solvent 601 in your operations. For samples, prices and additional data, write: Celanese Corporation of America, Chemical Division, Dept. 505-J, 180 Madison Avenue, New York 16, N. Y.



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NORMAL PROPANOL • BUTYLENE GLYCOLS • DIPROPYLENE GLYCOL • PROPYLENE GLYCOL • PROPYLENE OXIDE • TRICRESYL PHOSPHATES

When inquiring check CP 6928 on handy form, pgs. 2-3



MATERIALS

(Continued from page 27)

paste ranges from 2 to 4% based on the weight of the resin in a formulation.

Small quantities of lubricants are needed with Stabelan G-1. Blueing agents can be incorporated in formulations for clear films.

Physical properties and specifications are set forth below:

STABELAN G-1 PASTE

Color	White
Specific Gravity	1.15
Ash Content	23%
Volatile Loss:	
2 hr @ 220°F	2.25%
1 hr @ 350°F	7.5
Solubility in 100 cc Water @ 25°C	0.080 gm

Source: Samples and answers to technical questions are available from Harwick Standard Chemical Co., Dept. CP, 60 S. Seiberling St., Akron 5, Ohio . . . or for more information check CP 6929 on handy form, pages 2 and 3.

Prepares metal for painting in 1 operation by degreasing, de-rusting, etching . . .

cleaning compound is reported to eliminate pickling in a number of metal working operations

Uses: Removes oil and rust from metal surfaces, and in addition, prepares them for painting by etching and converting a thin layer to insoluble phosphates. Recommended for cleaning parts by either hand or tank application.

Features: Oil and rust removal, as well as surface conditioning are simultaneously accomplished with single cleanser in a single operation. Reported to eliminate pickling in a number of metal working operations.

Description: Identified as Compound No. 33, cleanser is an amber-colored, syrupy liquid having an aromatic odor. It is an acid type material whose bulk density is 11.3 lb/gal. Manufacturer will recommend dilution (from 5 to 50%) of No. 33 with water for specific soil removal jobs.

For cleaning in tanks, solution should be held at about 140°F. After rinsing and drying, parts are ready for painting. For hand swabbing of parts too large for tank cleaning, solution should be allowed to soak-in for 1 to 10 minutes. Again, rinsing and drying leave surfaces ready for painting.

Source: Compound No. 33 is a development of Oakite Products, Inc., Dept. CP, 22 Thames St., New York 6, N. Y. . . . or for more information check CP 6930 on handy form, pages 2 and 3.

Slide-rule assists in figuring corrosion protection

31½" by 9", 2-colored slide-rule assists those engaged in cathodic protection of pipelines. With pipe size and soil resistivity known, the slide-rule gives required magnesium anode size and life, length of pipe protected, and current output. A table of conversion factors is given on the back, along with a listing of anode sizes, weights, and lengths. The slide-rule "Magnesium Anode Cathodic Protection Guide" is available on letterhead request to Federated Metals Div., American Smelting and Refining Co., Dept. CP, 120 Broadway, New York 5, N. Y.

CHEMICAL PROCESSING

MATERIALS

Joints in plastic pipe made of glass cloth and furan resin . . .

alkali and acid proof joint is as thermally stable as the pipe

Uses: For joining or repairing resin based pipe or for armoring porcelain or stoneware.

Features: Properly made joints are as strong as the pipe itself. Material resists corrosive action of alkali or acid.

Description: Duro-Joint is composed of a spiral wrapping of glass cloth and Lecite furan resin cement. It can be made in the field without the use of heat or special equipment.

Joints were tested without failure under hydrostatic pressure pulsating rapidly from 0 to 350 psi. The joints were then placed under 100 psi steam and, while hot, immersed in 60° water. Duro-Joints were unaffected by this treatment. In another test, the joints were subjected to repeated blows of 8 ft-lb. After all tests had been completed, the joints showed no leakage or damage.

Source: Development of Electro Chemical Engineering & Mfg. Co., Dept. CP, 750 Broad St., Emmaus, Pa. . . . or for more information check CP 6931 on handy form, pages 2 and 3.

Fuel oil doesn't clog filter screens if additive is used . . .

prevents accumulation of sludge in storage tanks

Uses: To be added to fuel oils to prevent fouling of filter screens and injector parts of burners, diesel engines, etc.

Features: Extensive field tests indicate that clogging of fuel oil screens can become a thing of the past.

In addition to its non-clogging feature, additive is stable and non-corrosive and prevents accumulation of sludge in oil tanks.

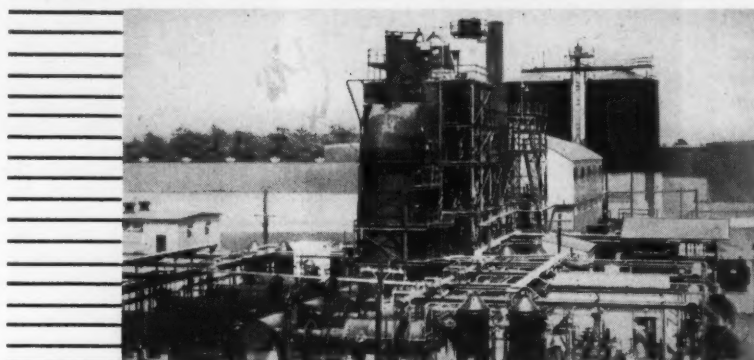
Description: Additive is being marketed under the name Ionad 17.

Source: Development of the Shell Chemical Corporation, Dept. CP, 50 West 50th St., New York 20, N. Y. . . . or for more information check CP 6932 on handy form, pages 2 and 3.

For more information on product at right, specify CP 6933 . . . see information request blank between pages 2-3.

TO BETTER SERVE YOU . . .

Witco expands its manufacturing facilities



LAKE CHARLES, LA.



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IN LAKE CHARLES

Witco-Continental's new plant is now in full scale production of High Abrasion Furnace black. Capacity: 25 million lbs. a year.

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Witco-Continental has expanded its facilities for production of Semi-Reinforcing Furnace black.

And you can be sure that Witco's 8 plants, located in strategic industrial areas across the country, are bending every effort to supply the quality basic chemicals so in need today.

A letter will bring you prompt information on any of Witco's products.



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MATERIALS

Advises on safe handling, use of methyl chloride

Information on the safe handling and use of methyl chloride is contained in 17-page publication. It sets forth safety rules and precautions to avoid hazards which may arise in handling of chemical. Certain properties are mentioned which lead to hazardous conditions: subject to slow decomposition upon contact with moisture; at high temperatures it may break down to form toxic compounds; and its flammability.

Bulletin also includes I.C.C. regulations which apply to tank cars and cylinders used in transportation of the material. These cover loading, unloading and return of empty containers, as well as correct labeling. Effective employee education is stressed. Gives information on first aid measures and medical treatment for guidance in the control of health hazards wherever methyl chloride vapors may be present. Chemical Safety Data Sheet SD-40, Methyl Chloride, may be obtained by remitting 30c to the Manufacturing Chemists' Association, Inc., Dept. CP, 246 Woodward Building, Washington 5, D.C.

Stuck on dry surface innumerable times, tape keeps tack . . .

electrical tape is thin, takes up little space in junction boxes, has good adhesion

Uses: Self-adhesive tape for electrical insulation applications.

Features: Adhesive is non-transferring. Tape can be pressed onto a dry surface innumerable times without losing its tack. Adhesion to copper wires and to itself is high.

Description: Tape is made of Koroseal and has a dielectric strength of 8000 volts, is water proof, and resistant to abrasion, flames, acids, oils, alkalis, and corrosive salts. Being thin (0.007"), it takes up little room in junction boxes and other tight quarters. It stretches and conforms readily to irregular surfaces. Supplied on rolls 3/4" wide x 60' long.

Source: Development of The B. F. Goodrich Co., Dept. CP, Akron, Ohio . . . or for more information check CP 6934 on handy form, pages 2 and 3.

High electrical resistance credited to bonds with resin adhesive . . .

joins ceramics, metals, glass to themselves, other materials; joints resist chemical, mechanical action

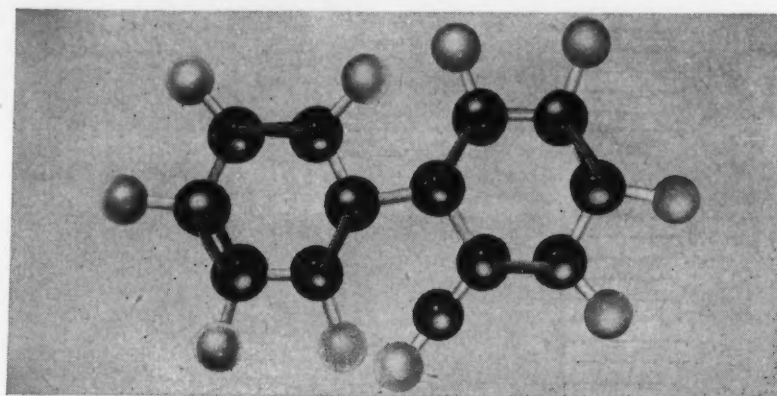
Uses: Bonds metals, ceramics, and glass to themselves as well as to such materials as wood, cloth, synthetic rubber, and paper. Applications are being found in the following fields: can lining and seaming, potting compounds, non-conductive soldering, sealing of castings, coating of wire, optical cements, joining neoprene to plastics, inserting resistant liners in bottles, cementing gaskets, bonding aluminum to itself, joining copper to masonite, sealing fuel tanks, and a host of others.

Features: In addition to good bonding properties, adhesives resist chemicals, solvents, abrasion, and heat. Virtually no effect results from contact with aqueous acids or alkalis, gasoline or oils.

Most noted virtue of bonds made with these adhesives is their electrical resistance. Resistance to moisture and

MONSANTO
CHEMICALS • PLASTICS

These useful Monsanto intermediates available for immediate delivery

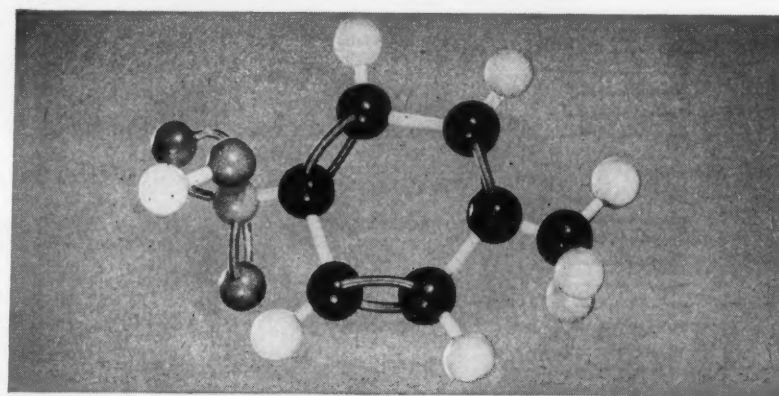


ortho-Phenylphenol

Ortho-phenylphenol, technical, available now from Monsanto, has numerous possibilities in addition to its present uses. In this day of shortages, it may be the answer to some of your problems.

Typical Analysis

Appearance and Color . . .	Light tan-white solid
Crystallizing Point . . .	50.6° C.
% Ortho P.P. (from Cryst. Pt. Curve) . . .	95.2
Phenol (from Cryst. Pt. Curve) . . .	4.8
First Drop . . .	277° C.
50% . . .	288° C.
Dry Point . . .	289° C.

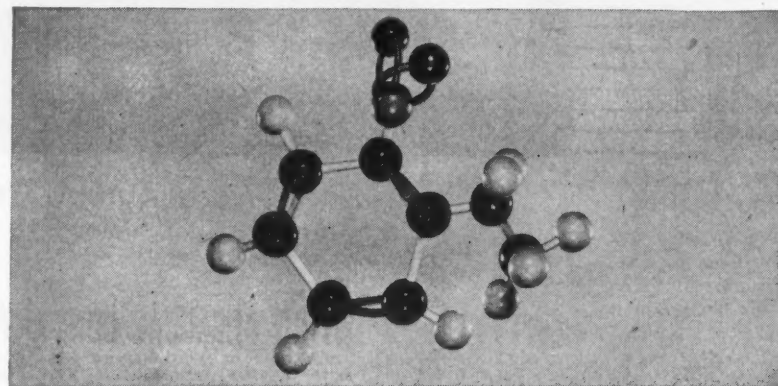


Toluenesulfonic Acid

If you need toluenesulfonic acid, technical, get in touch with the nearest Monsanto Sales Office. Monsanto can give you prompt service on this chemical. It's used as a dyestuff intermediate and as a catalyst in certain organic reactions.

Typical Analysis

Appearance and Color . . .	Greenish to black viscous liquid or semicrystalline solid
Molecular Weight . . .	172.20
Toluenesulfonic Acid . . .	94.0% min.
H ₂ SO ₄ . . .	1.0% max.
Water . . .	2.0% max.
Toluene . . .	0.2% max.
Para Isomer . . .	80.0%
Ortho Isomer . . .	20.0%



ortho-Ethylnitrobenzene

In Monsanto's available ortho-ethylnitrobenzene, you may find the solution to some of your troubles with chemical shortages.

Approximate Properties

Molecular Weight . . .	151.1
Appearance . . .	Yellow to green, clear liquid
Assay . . .	99-100% (Including approx. 4% to 6% para isomer)
Boiling Point . . .	About 228° C.
Crystallizing Point . . .	About -12° to -14° C.
Refractive Index at 25° C. . .	1.53
Solubility . . .	Miscible in most organic solvents, immiscible in water.
Specific Gravity at 25°/25° C. . .	1.1

Low-cost HB-40 can help you solve plasticizer problem

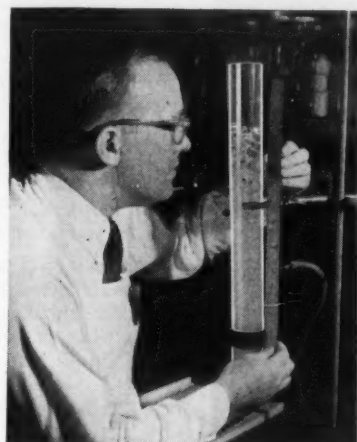
Regardless of your supply situation on plasticizers, take a look at Monsanto's HB-40. HB-40 is available... low in price... an excellent coplasticizer or plasticizer extender in vinyls.

HB-40 (partially hydrogenated terphenyl) is practically colorless and, properly stabilized, performs excellent service in clear and pastel-shaded films. It is practically free of toxicity and odor.

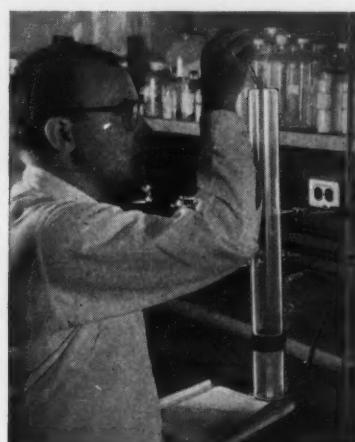
HB-40 reduces costs without sacrificing quality when employed as a coplasticizer or as an extender for primary plasticizers in vinyl extrusions, vinyl pastes, vinyl slush moldings and in both supported and unsupported vinyl films and sheetings. The amount of HB-40 that can be used varies from 20% to 50% based on the total weight of plasticizer in the formulation. The amount to be employed depends on the specific formulation, the type of processing and the end use of the finished vinyl plastics.

For complete technical information on Monsanto HB-40, contact the nearest Monsanto Sales Office or mail the coupon for a copy of Monsanto Technical Bulletin No. P-104.

Monsanto AE-1, efficient defoamer, has possibilities in many processes



Without AE-1



With AE-1

Monsanto AE-1, a new, high-molecular-weight alcohol-ester, has proved its efficiency as a defoamer. It has been used effectively in several other applications and has many unexplored possibilities. AE-1 is priced for economy and it is available in any quantities you need.

Defoamer

As a defoamer, AE-1 is efficient and economical and is effective even at low pH ranges. It has found application as a capable defoamer in the following:

In ethyl alcohol production from molasses, 4 parts per million, added at the fermenter, controls foam.

In yeast manufacture, and in other fermentations, 50 to 500 ppm. of AE-1 ends the foam problem.

In polystyrene latex water dispersions, foam is kept in check by 0.5% to 1.5% of AE-1.

Lubricant for Vinyls

Good lubricity for extruding or calendering vinyls results from the addition of 2% of AE-1, based on the resin.

Plasticizer

AE-1 is an excellent coplasticizer for rubber hydrochloride and chlorinated rubber. It is compatible with nitro cellulose and other cellulosic derivatives.

Antiblooming Agent

Used in pentachlorophenol wood preservative formulations, AE-1 is an effective

antiblooming agent. It dissolves 25% by weight of Penta at 25° C. AE-1 increases the solubility of Penta in wood-preserving formulations.

Physical and chemical characteristics of Monsanto AE-1 indicate numerous other applications in industry. If you would like to do some exploring on the use of AE-1 in your business, mail the coupon for a copy of Monsanto Technical Bulletin No. P-140. And write for free sample for your evaluation.

MONSANTO CHEMICAL COMPANY, 1700 South Second Street, St. Louis 4, Missouri. District Sales Offices: Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle. In Canada, Monsanto (Canada) Ltd., Montreal.



SEND INFORMATION:

- ☐ ortho-EthylNitrobenzene
- ☐ ortho-Phenylphenol
- ☐ Toluenesulfonic Acid
- ☐ Rubber Chemicals and Laboratory Service

SEND LITERATURE:

- ☐ Bulletin P-104 (HB-40)
- ☐ Bulletin P-140 (AE-1)

MONSANTO CHEMICAL COMPANY

1700 South Second Street, St. Louis 4, Missouri

Please send, without cost or obligation, information or literature as indicated at the left.

Name.....Title.....

Company.....

Street.....

City.....Zone.....State.....

MATERIALS

heat, plus the high bonding strength are said to practically eliminate channeling and arcing. Dielectric strength and volume resistivity are excellent.

Description: When set, Pylene adhesives are tough and horny materials. These resins are available as powders, pre-polymer liquids, and as solvent solutions that can be supplied in one part containing catalysts already incorporated, or as two parts to be mixed prior to use. Some grades can be converted to very hard and tough plastics without the use of heat, while others polymerize entirely by means of heat.

Source: Development of Polymer Industries Inc., Dept. CP, Astoria, L. I., New York... or for more information check CP 6936 on handy form, pages 2 and 3.

Properties and uses of polymeric resin

Illustrated, four-page folder outlines data and performance information on plasticizer which finds use in many vinyl applications such as cast and calendered light weight film, coated fabrics, sheeting, extrusions, and injection as well as slush moldings. Four tables evaluate physical and electrical properties, list typical formulations and report stabilization effects. Specific gravity of material is less than one, so that weight of high-density vinyl polymers is reduced.

Compatibility in wide variety of materials is reported, including polyvinyl chloride; polyvinyl chloride-acetate; nitrocellulose and ethyl cellulose; chlorinated rubber, neoprene and nitrile rubber; linseed, raw castor, and dehydrated castor oils. Compound is soluble in ketone, ester, aromatic and aliphatic hydrocarbons. Cites laboratory tests showing resin's resistance to soap and alkali. "Heat Stability for Vinyls" is issued by Resinous Products Div., Rohm & Haas Co., Dept. CP, Washington Square, Philadelphia 5, Pa. When inquiring specify CP 6937 on handy form, pages 2 and 3.

Rod being molded from strong, resistant plastic...

available in fractional sizes — either commercial or ground tolerances; tensile strength 120,000 psi

Uses: Applications of plastic rod include stand-off insulators, tension rods, supports in chemical equipment, and structural members in corrosive atmospheres.

Features: High tensile strength and excellent electrical properties. Resistant to acids and mild alkalis, as well as to salts and most organic solvents.

Description: Rod is being molded of maker's Dynakon-F plastic in fractional sizes — either commercial or ground tolerances. Some outstanding values are tabulated below:

DYNAKON-F PLASTIC ROD

Tensile Strength, psi	120,000 (approx)
Compressive Strength, psi	70,000
Flexural Strength, psi	150,000
Young's Modulus	6 x 10 ⁶
Impact Strength, (perpendicular to axis), Izod, lb-ft	70
Arc Resistance, sec ASTM	120
Dielectric Strength, v/mil	280
Moisture Absorption, %	0.15
Specific Gravity	1.9

Source: Product of The Dynakon Corporation, Dept. CP, 5509 Hough Ave., Cleveland 3, Ohio... or for more information check CP 6938 on handy form, pages 2 & 3.

When inquiring check CP 6935 on handy form, pgs. 2-3

INTERESTED IN
BETTER WET
PROCESSING ?

Look into
ULTRAWET 60L



ULTRAWET 60L—an organic alkyl aryl sulfonate, 60% solids and 40% water—is tops in detergency, wetting and emulsifying properties with excellent rinsability and freedom from inorganic salts. It's especially effective in three textile operations:

Dyeing. ULTRAWET 60L has excellent leveling and penetrating action. It is unusually effective in the direct dyeing of cottons and viscose rayons, acid dyeing of wool, and aids the levelness of acetate rayon dyeing.

Enzyme Desizing. For starch hydrolyzing enzyme desizing baths, there's no better wetting agent than ULTRAWET 60L. It provides double effectiveness: it has no inhibiting effect on the enzyme's action, and—at the same time—ULTRAWET 60L's superior wetting action is not impaired by the enzyme.

Fulling and Scouring. ULTRAWET 60L is outstanding for fulling and scouring woolen piece goods. It has proved about five times as effective as soap on an active content basis. Its easy-mixing liquid form is highly advantageous, too.

For complete information and technical co-operation—write The Atlantic Refining Company, Chemical Products Section, Dept. C-6, 260 S. Broad St., Phila. 1, Pa.

**SOME OF THE ATLANTIC PETROLEUM CHEMICALS
ARE CURRENTLY IN SHORT SUPPLY**

IN THE EAST AND MIDWEST

THE ATLANTIC REFINING COMPANY

Philadelphia • Pittsburgh • Providence • Charlotte • Chicago

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ATLANTIC

PETROLEUM
CHEMICALS

Without obligation, please send me
further information on ULTRAWET
60L.

(DEPT. C-6)

Name _____

Company _____

Address _____

When inquiring check CP 6939 on handy form, pgs. 2-3

MATERIALS

'No' thermal expansion credited to ceramic...

has undergone 100 cycles of heating to 2000°F and liquid air quenching without apparent harm

Uses: Adaptable for pickling bath containers, kiln furniture, induction heating units, high temperature jigs, wire wound coil forms, pouring ladels for metals, electronic insulators, laboratory combustion boats and tubes, over-flame cooking ware, dilatometer tubes and rods, thermocouple protection tubes, etc.

Can be used at temperatures up to 2400°F, and believed to be stable indefinitely.

Features: Exceptionally low coefficients of expansion permit materials of this series to withstand extreme thermal shock. An illustration of this was shown in tests where a sample was heated to 2000°F and plunged into liquid air repeatedly 100 times without apparent harm. Samples have been held at 2000°F for as long as 120 days without detectable changes in specific gravity.

Description: "Stupalith" is composed basically of lithium aluminosilicates, ranging from oxides equivalent to the mineral eucryptite, through the mineral petalite. It can be pressed, extruded, cast, and rammed. After firing, parts can be machined and held to close dimensional tolerances.

Two grades of Stupalith are available: "zero" thermal expansion, and "near-zero" thermal expansion. Physical values are outlined below:

STUPALITH CERAMICS

Test	A-2317	A-2209
	"zero"	"near-zero"
Compressive strength, psi	19,880	60,800
Impact strength, ft lb/sq in	0.90	1.40
Modulus of rupture, psi	4250	8000
Moisture absorption, %	21.5	0.00
Bulk density, gm/cc	1.60	2.34
Coefficient of thermal expansion, 20-500°C, in/in/°C	0.063 x 10 ⁻⁶	0.85 x 10 ⁻⁶
Thermal shock, °F to cold water	2300	900
	Wet	Dry
Power factor, %	0.492	0.424
Dielectric constant	5.56	5.57
Loss factor, %	0.0273	0.0236
Dielectric strength, v/mil		450.0
JAN I-10, L Grade	L-3	L-3

Source: Development of the Stupakoff Ceramic & Manufacturing Company, Dept. CP, Latrobe, Pa. . . or for more information check CP 6940 on handy form, pages 2 and 3.

Eliminates fogging and steaming of eyeglasses and goggles — glass or plastic . . .

safeguards vision, increases accuracy of precision workers under conditions of dirt and fog

Uses: In those situations where goggles, face shields or shatterproof glasses become steamed or fogged from body heat, humid summer heat, freezing temperatures or steaming vapors.

Features: Increases safety and efficiency by allowing those employees required to wear goggles glasses, to use them continuously; whereas, by removing fogged safety devices or by working "blind" they risk injury or loss of vision.

Description: K-Lens-M Anti-Fogging Liquid is part

CHEMICAL PROCESSING

MATERIALS

of a unit which includes a dispenser cabinet fitted with K-Lens-M Cleaner, lint-free wiping tissue and disposal space. Both the cleaning and anti-fogging liquids are applied by means of finger tip spray pumps. The anti-fogging liquid is designed to create an invisible coating on optical surfaces, and one application normally lasts for several hours, depending on condition of lens and exposure factors. In one field test in an ice cream plant, goggles and glasses of workers were treated and, under regular working conditions involving extremes of heat and freezing temperatures, the lenses were free of fog an entire day.

Source: K-Lens-M Anti-Fogging Liquid and the dispenser cabinet are manufactured by The Wilkins Co., Inc., Dept. CP, Cortland 5, N. Y. . . . or for more information check CP 6941 on handy form, pages 2 and 3.

Non-technical approach to fuel oils

Manual of 160 pages provides practical information on the properties, selection, handling and burning of fuel oils. Theory and involved discussions are held to a minimum as the book is intended primarily for those who buy or use fuel oils but are not informed in detail about these products. A table of NBS specifications for the five standard grades of fuel oils is given, and the text especially concerns itself with the industrial grades 2, 4, 5 and 6. Early chapters discuss the chemistry of petroleum and the refining processes.

A chapter is devoted to the various important properties of fuel oil, including: gravity, viscosity, flash and fire points, pour point and heat of combustion. In each case the author defines the properties and indicates how the information can be applied in selecting and burning the oils. Reclaimed fuel oils, blending of oils, transportation and storage and stability of fuel oils are other topics reported. An interesting chapter on treatment of fuel oils explains additives, their composition, use and range of effectiveness in correcting sludge conditions. Last chapter is devoted to troubles and complaints encountered in the use of oils and the probable causes.

To obtain "Fuel Oil Manual" remit \$3.50 direct to The Industrial Press, Dept. CP, 148 Lafayette St., New York 13, N. Y. When inquiring specify CP 6942 on handy form, pages 2 and 3.

Announces six stabilizers for latex emulsion paints . . .

yield formulations that give high water resistance, are easily brushed, are resistant to freezing

Uses: Six different stabilizers for latex emulsion paints.

Features: Advantageous properties that these stabilizers impart to latex emulsion formulations include high water resistance, improved resistance to freezing, brilliant colors, easier brushing, elimination of heating and mixing formulations, and elimination of storage problems.

Description: Stabilizers bear the names Cascola, Cascolac, or Protovac — two are powders, and the remaining four are liquids.

Source: Development of the Chemical Division of the Borden Company, Dept. CP, 350 Madison Avenue, New York 17, N. Y. . . . or for more information check CP 6943 on handy form, pages 2 and 3.

OCTOBER, 1951

D

An Economical Source of
**HIGH PURITY
REACTIVE SILICA**
Davison's Grade 19 Silica Gel

Properties
 PARTICLE SIZE On 80 mesh
 APPARENT DENSITY 46 lb./cu. ft.
 TRUE DENSITY 2.2 gm./ml.
 HEAT OF WETTING . 14 cal./gm.
 SILICA AS SiO₂ 99.8% (Dry basis)
 COLOR White
 REFRACTIVE INDEX . 1.4
 HARDNESS 4-5 (Moh Scale)

Suggested Applications
 Source of Pure Silica in
 Chemical Reaction
 Anti-caking
 Rubber Porosity
 Anti-blocking

Mail this Coupon!

Davison Grade 19 Silica Gel is an amorphous, extremely porous form of silica. It is odorless, a non-conductor of electricity and has a high adsorptive capacity for gases and liquids. Davison silica gel can be produced in many variations to assure maximum efficiency in your particular application. Send the coupon for further information and prices on Davison Grade 19 Silica Gel . . . four-page folder giving chemical and physical properties and suggested applications on all dependable Davison products.

Progress through Chemistry
THE DAVISON CHEMICAL CORPORATION
 Baltimore 3, Maryland
 PRODUCERS OF: CATALYSTS, INORGANIC ACIDS, SUPERPHOSPHATES,
 PHOSPHATE ROCK, SILICA GELS, SILICOFLOURIDES AND FERTILIZERS

THE DAVISON CHEMICAL CORPORATION
 INDUSTRIAL CHEMICAL DIVISION
 BALTIMORE 3, MD.

☐ Please send me information and prices on Davison Grade 19 Silica Gel

☐ Four-page folder on dependable Davison products

NAME.....

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ADDRESS.....

CITY.....

ZONE..... STATE.....

When inquiring check CP 6944 on handy form, pgs. 2-3

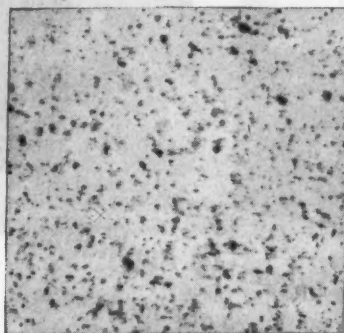
HERE'S PROOF OF THE COMPLETE EFFECTIVENESS OF MARASPERSE DISPERSANTS

Without
Marasperse



These photomicrographs* show vividly how Marasperse disperses insoluble particles in water and overcomes their natural tendency to flocculate.

With
Marasperse



(*Shown—Actual Photomicrographs of Carbon Black in Water—860 X)

This powerful dispersing action of Marasperse gives three important benefits.

1. The settling of insoluble particles in water suspension is prevented or greatly retarded.
2. The fluidity of slurries is markedly increased.
3. Slurries remain fluid even with greatly increased concentrations of solids.

If your process or the use of your products involves water suspensions of insoluble materials, investigate the use of Marasperse for increased process efficiency and superior product performance.

Marasperse is used in a wide variety of applications—in the dispersion of:

**DYESTUFFS
INSECTICIDES
PIGMENTS
WAXES
ASPHALT
OIL WELL DRILLING
MUDS
CARBON BLACK
STARCHES
GYPSUM
CLAYS
CEMENTS
RUBBER ANTIOXIDANTS
IN THE FORMULATION
OF INDUSTRIAL
CLEANERS**

... and new uses are constantly being developed.



MARATHON CORPORATION

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Write for information on MARASPERSE products. You will receive complete and technical data. Our research staff will welcome the opportunity to cooperate with you.



When inquiring check CP 6945 on handy form, pgs. 2-3

MATERIALS

Tensile strength of plastic about the same as that of aluminum . . .

unplasticized vinyl chloride is serviceable in liners, piping, sheets, or formed plate

Uses: Major uses to date include tanks and tank liners, ducts and piping, and other applications where corrosion is a problem. Available in many standard forms such as sheet, tube, or formed plates which can be welded, machined or formed. Can also be obtained as a powder, suitable for molding.

Features: Weighing only half as much as aluminum, it has about the same tensile strength as the metal.

Description:

Lucoflex is a non-plasticized polyvinyl chloride. Due

to the absence of a plasticizer, it does not change its properties on aging. It requires no corrosion protection since it is corrosion resistant to almost all acids and alkalis as well as many special chemical solutions. Furthermore, water vapors do not permeate it and it is unaffected by temperature in the range between minus 50 and (plus) 177°F.

The material is available in ample supply and manufacturer engineers special industrial applications.

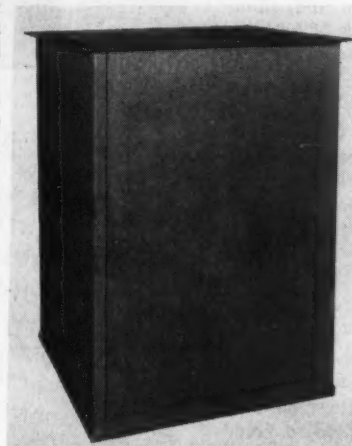
Source: Product of The Van Dorn Iron Works Co., Dept. CP, 2685 E. 79th St., Cleveland, Ohio. . . or for more information check CP 6946 on handy form, pages 2 and 3.

Test methods for rubber and related products compiled

A special compilation, this 656-page book includes in convenient compact form the 100 widely used standard and tentative test methods and specifications which have been developed through the work of the American Society for Testing Materials Committee D-11.

The following represent a few subjects and materials covered by tests in this book: automotive rubber, hose and belting, tape, electrical protective equipment, rubber-coated fabrics, hard rubber, foam or sponge rubbers, cements, and non-rigid plastics. Chemical and physical tests are given for vulcanized rubber. This compilation presents standard tests as well as recent revisions and additions.

Emergency alternate provisions are included. These are the specifications which were and are applied to formulations where critical materials must be conserved. To obtain "ASTM Standards on Rubber Products" remit \$5.00 direct to American Society for Testing Materials, Dept. CP, 1916 Race Street, Philadelphia 3, Pa. When inquiring specify CP 6947 on handy form, pages 2 and 3.



Plating tank lined with polyvinyl chloride is impervious to sulfuric acid

Magnolia Airco Nitrogen Hydrogen Rare Gases and Liquids

Are the Standard of Quality in the Southwest

Magnolia Airco gases — oxygen, nitrogen, hydrogen, argon, helium, neon, krypton, xenon, and liquid oxygen, nitrogen and air — are known throughout the Southwest for their high purity, unvarying uniformity and dependable quality. This uniformity and adherence to specifications of Magnolia Airco gases, and rare gas mixtures, are definite factors contributing to their satisfactory use.

And, no matter where your plant is located in the Southwest, you can depend on Magnolia Airco for a steady, dependable gas supply, packaged to meet your needs.

For more information, write your nearest Magnolia Airco office.



AIR REDUCTION MAGNOLIA Co.

A Division of Air Reduction Company, Incorporated
Beaumont • Corpus Christi • Dallas • El Paso • Fort Worth • Hobbs • Houston
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Southwestern Headquarters for Oxygen, Acetylene and Other Gases . . . Carbide . . . Gas Welding and Cutting Machines, Apparatus and Supplies . . . Arc Welders, Electrodes and Accessories.

When inquiring check CP 6948 on handy form, pgs. 2-3

CHEMICAL PROCESSING

MATERIALS

Coat acetates under 100% humidity . . .

coatings show good properties

Uses: Series of coating materials for acetate plastics.

Features: Have unusual properties of hardness, flexibility, and adhesion, in addition to extreme resistance to imbrittlement, rapid drying, and can be sprayed-on in any weather including 100% humidity.

Description: Logoquant Series A coatings for acetate plastics include bright metallic and pigmented colors, in addition to customer-specified formulations.

Maker reports that Series A coatings will withstand the 'Scotch Tape' adhesion test. He says that these coatings will withstand more abrasion than the acetate base over which they are applied. High-humidity conditions do not cause coatings to lose their surface gloss or adhesion.

Source: Development of the Bee Chemical Company, Dept. CP, 13799 South Avenue "O", Chicago 33, Ill. . . . or for more information check CP 6949 on handy form, pages 2 and 3.

Methylene group valuable on phenylacetic acid . . .

undergoes reactions typical of a normal organic acid

Uses: Has value as a penicillin precursor and as plant fungicide and hormone. Finds application as an intermediate in preparation of drugs (antispasmodics, sedatives, antiseptics, and anticoagulants), perfume aromatics, and insect repellents.

Features: Reactive methylene group is of outstanding value. Undergoes reactions typical to a normal organic acid.

Description: Phenylacetic acid (an aralkyl acid) as supplied by this maker has a purity of 99.0% (min), melting point of 76.0°C (min), and is in the form of flakes. Packaged in 25, 50, and 100-lb drums.

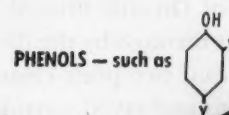
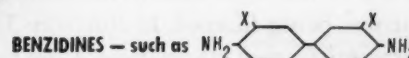
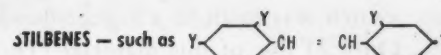
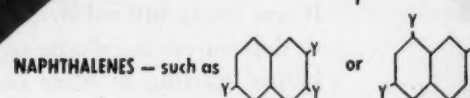
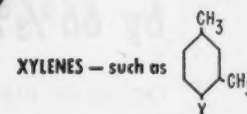
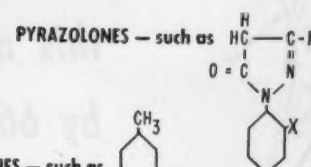
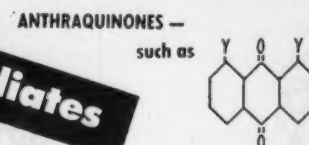
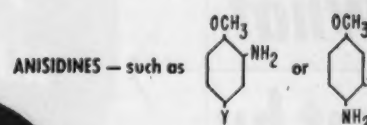
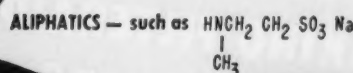
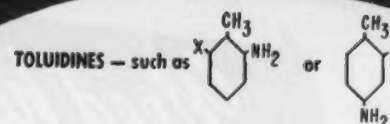
Source: Reactions are detailed in 10-page bulletin available from Kay-Fries Chemicals, Inc., 180 Madison Ave., New York 16, N. Y. . . . or for more information check CP 6950 on handy form, pages 2 and 3.

For more information on product at right, specify CP 6951 . . . see information request blank between pages 2-3.

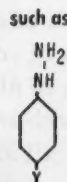
OCTOBER, 1951

How can you use these Antara® Intermediates

x-halide groups
R-alkyl groups
y-other groups



PHENYL HYDRAZINES —



Complex chemical compounds

such as dyes and drugs, plastics and rubber, are formed through a long series of chemical reactions, each yielding a product which is further modified to give the final complex. Every stepping stone in that processing path is a chemical intermediate.

Antara offers a wide variety of benzene, naphthalene and anthraquinone derivatives well adapted for further conversion into pharmaceuticals, insecticides, dyestuffs, explosives, antioxidants, brighteners and allied products.

Let Antara's competent research and development facilities and trouble-shooting sales force work for you in solving your intermediate problems, or in providing a new source of supply. Write, Dept. CP1051, for complete information.

INTERMEDIATES DEPARTMENT



ANTARA. PRODUCTS

SUBSIDIARY OF
GENERAL DYESTUFF CORPORATION
135 HUDSON STREET • NEW YORK 14, NEW YORK

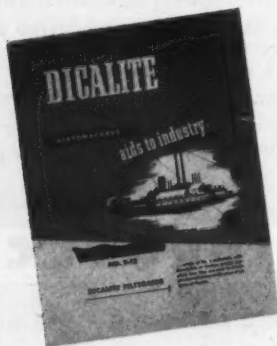
**Here's what
we meant by**



**A survey by a Dicalite Engineer enabled
this manufacturer to cut filteraid usage
by 66 $\frac{2}{3}$ % per gallon of throughput**

One of the many products in this manufacturer's line is varnish. It was being filtered by precoat only, using 100 lbs. of filteraid to deposit on the cloths of a 200-sq. ft. plate and frame press before starting to filter each 1000-gal. batch. A survey by a Dicalite engineer led to saving both time and filteraid. First, a switch was made to a higher-flowing grade of Dicalite filteraid. Only 25 lbs. of this material (Dicalite 4200) was used for the precoat, but 75 lbs. were used in continuous addition to the varnish as it was being filtered. In this way 3,000 gallons were filtered with satisfactory clarity before the press needed cleaning. **RESULT:** 1) 100 lbs. of Dicalite filtered 3,000 gallons instead of the 1,000 gallons put through by the former method; 2) cycle length was tripled, so that two press cleanings were eliminated in filtering 3,000 gallons and saved considerable down time and overtime. Such spectacular savings are not always possible, but our engineers find many cases where filteraid consumption could be reduced 10% to 15% without any ill effects to operation or product quality. If you feel that a check of your filtration operation or stretching your available supply of filteraid will be helpful, or if you have a current filtration problem, write our nearest office. A Dicalite engineer will gladly call at your convenience.

Send for
free copy of
Bulletin B-12



DICALITE® FILTERAIDS

DICALITE DIVISION, GREAT LAKES CARBON CORPORATION

NEW YORK 17, N. Y. • CHICAGO 1, ILL. • LOS ANGELES 17, CALIF.

When inquiring check CP 6952 on handy form, pgs. 2-3

MATERIALS

Doubles-for, even surpasses castor oil for plasticizing nitrocellulose . . .

no spewing or migrating in nitrocellulose at temps that would cause castor oil to do so

Uses: Plasticizer for nitrocellulose films, either as a 100% replacement for castor oil (pound for pound basis), or in any percentage of mixture with castor oil.

Also being investigated as a replacement for castor oil in fabric and paper coating, inks, carbon papers, decals.

Features: Does not spew or migrate in nitrocellulose films at temperature ranges usually causing castor oil to behave in this manner.

Some users report that they are using slightly more of this plasticizer than castor oil to obtain a very soft, pliable nitrocellulose film — *without* attendant tackiness.

Satisfactory replacement of castor oil in nitrocellulose films is due to the fact that this plasticizer is completely soluble in alcohol.

Description: P-319 Plasticizer is made by esterifying selected fatty acids with a special polyhydroxyl alcohol. Result is an oil with behavior characteristics of castor oil when used in nitrocellulose formulations. Since all components are of domestic origin, there should be an ample supply of P-319.

Tests indicate that greater flexibility is achieved with P-319 than with castor oil. Toughness that can be attained aids coating rigid surfaces (wood, metal). P-319 is completely compatible with nitrocellulose, resins, and castor oil. Following are specifications:

P-319 Plasticizer for Nitrocellulose	
Viscosity (Gardner)	D-E
Acid number	Less than 10
Color (100% solids, Gardner)	9-11
Pounds per gallon	7.95
Xylol tolerance	Infinite
Alcohol tolerance	Excellent
Non-volatile	100%

Source: Development of Bonner Chemicals, Inc., Dept. CP, 31 Spruce St., Leominster, Mass. . . . or for more information check CP 6953 on handy form, pages 2 and 3.

Fluxes incorporating hydrazine leave no corrosive residues, produce strong bonds . . .

availability limits usage to manufacture of automotive radiators and other heat exchange equipment

A series of soldering fluxes, which bear the trade name M.C.C., are made from hydrazine and find use in a chemical-metallurgical method of soldering called the "Coronil Soldering Process". The fluxes are suitable for use in joining most of the commonly employed metals and produce radiators of high strength which are less likely to be troubled with corrosion. It is stated that soldering process has resulted in simplification of production methods.

Hydrazine was used as a rocket fuel by the Germans in World War II, and has since found commercial application in the pharmaceutical, agricultural, metal finishing and synthetic fibre fields. Research by the McCord Corp. showed certain hydrazine compounds meeting requirements of an ideal soldering flux, and a cooperative development program was carried out with Mathieson Chemical Corp.

The "Coronil Soldering Process", in use for some time at one McCord plant, will be extended to operations in its

CHEMICAL PROCESSING

MATERIALS

other plants in the near future. The M.C.C. fluxes, available from Mathieson through an arrangement with McCord, have already found application in the manufacture of electronic equipment and in other industries.

(Information furnished by Mathieson Chemical Corp., Dept. CP, Mathieson Building, Baltimore 3, Md.)

Announces quantity lots of heat-sealing resin suspensions . . .

applications being extended; new types being developed

Uses: Find main use as heat-sealing adhesives and coatings. Applications are being extended to 'wet stick' adhesives, soil resistant coatings for textiles, protective and decorative coatings, beater additives and tub sizes for paper, and binders for wide variety of composition materials.

Features: Available for the first time in carload lots.

Description: Polyamide Resin Suspensoids are opaque white, water suspensions of maker's heat-sealing resins. Base products are formed by the condensation of dimerized vegetable oil acids with ethylene diamine. Although non-blocking, they heat-seal at low temperatures. Suspensoids form opaque white films composed of discrete particles, indistinguishable to the naked eye. When heat-fused the films become continuous.

Four types of Suspensoids are now available for specific applications; others will be developed as demanded.

Source: Development of General Mills Research Laboratories, Dept. CP, 2010 E. Hennepin Ave., Minneapolis 13, Minn. . . or for more information check CP 6954 on handy form, pages 2 and 3.

Joints holding sealing compound are readily broken, even after long service . . .

material remains soft, doesn't set; can be used at pressures to 5000 psi, temps to 500°F.

Uses: For sealing gaskets and threaded joints. May be used with oil, water, steam, gaseous fuel, refrigerants, gasoline, distillates, LP gases, chemical solutions, etc. Recommended for pressures to 5000 psi, temperatures to 500°F.

Features: Since sealer stays soft for long periods of time, joints are readily disassembled even after extensive use. Material lubricates joints, permitting them to be drawn up easily, yet prevents the rust and corrosion which would freeze them together. It fills all voids, eliminating even slight "weepage."

Description: Graycote is composed of six basic ingredients, chief of which is a spongy metallic pigment and a non-drying insoluble oil. It is UL-approved for joining threaded pipe connections or other closely fitting metal parts in devices handling propane, butane, gasoline or petroleum oils. Gaskets painted with the sealer can be disassembled without sticking, and are often reusable. Reported to seal under extreme conditions of vibration, expansion and contraction.

Source: Product of Chicago Gasket Company, Dept. CP, 1275 W. North Avenue, Chicago 22, Ill. . . or for more information check CP 6955 on handy form, pages 2 and 3.



High Voltage Insulator

BUILDING BETTER BODIES WITH ALCOA ALUMINA



Dipping Form-Rubber Glove

Betatron Tube

The Colonial Insulator Company, Akron, Ohio, has been successfully manufacturing quality porcelain products since 1894. Which means they're in a position to recognize a good thing in the ceramics field when they see it. They saw it in ALCOA Alumina.

After extensive experimental work, Colonial recently began producing porcelain bodies containing approximately 15% ALCOA Calcined Alumina. The results were even better than expected. ALCOA Alumina not only lowered the coefficient of expansion and reduced thermal deformation, but increased resistance to abrasion, thermal and mechanical shock. Colonial porcelains are now stronger, whiter, more impervious and dielectrically superior to the old product—because of ALCOA Alumina.

All over the country, *successful* ceramic manufacturers are doing great things with ALCOA Alumina. Whether they make abrasives or glazes, refractory bricks or glass, they know that by adding this uniformly pure aluminum oxide to their mixes, they make their products *better*.

For the qualities you want most in your ceramics, rely on ALCOA Alumina. It can make any ceramic product—*your product*—the best of its kind. We'll gladly tell you how. Write to: ALUMINUM COMPANY OF AMERICA, CHEMICALS DIVISION, 606K Gulf Building, Pittsburgh 19, Pennsylvania.

Alcoa Chemicals

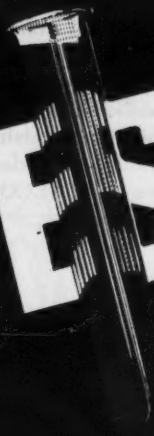


ALUMINAS and FLUORIDES

ACTIVATED ALUMINAS • CALCINED ALUMINAS • HYDRATED ALUMINAS • TABULAR ALUMINAS • LOW SODA ALUMINAS
ALUMINUM FLUORIDE • SODIUM FLUORIDE • SODIUM ACID FLUORIDE • FLUOBORIC ACID • CRYOLITE • GALLIUM

When inquiring check CP 6956 on handy form, pgs. 2-3

DO YOU NEED...
TEST

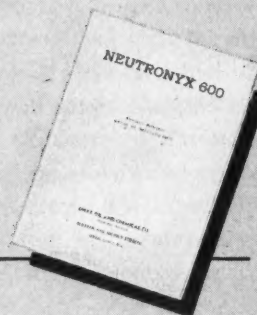


...a dependable
non-ionic
detergent and wetting agent?

**NEUTRONYX
600**

- It is one of the most effective wetting and emulsifying agents in existence.
- Compatible with acids . . . alkalis . . . electrolytes . . . hard water and both cationic and anionic surface-active agents.
- Chemically stable. Does not deteriorate in storage.
- Can be used at elevated temperatures because of its low volatility.
- Neutronyx 600 is an aromatic polyglycol ether with a wide range of existing and potential uses for economical wetting and emulsifying effects.

Write for the
Neutronyx 600 Bulletin.



MATERIALS

Cleans and sanitizes in single operation . . .

detergent promotes effective cleaning, quaternary ammonium compound responsible for sanitizing

Uses: Odorless, liquid cleanser for general plant use. For walls, windows, utensils, floors, equipment, etc.

Features: Cleans and sanitizes in one operation, eliminating need for an extra sanitizing rinse after cleaning. Equally effective in hard or soft water, and leaves no residual film.

Description: "Sanikleen" combines a quaternary ammonium compound with a compatible synthetic detergent for good cleaning. When mixed according to directions (1 oz./gal), bacterial contamination is reduced to a point considered safe by public health requirements. Concentration can be increased without damaging surfaces.

Surfaces may be mopped, scrubbed, or brushed.

Tests have shown Sanikleen to be non-toxic. Solutions are less alkaline than comparable soap solutions because the detergent is almost neutral in pH. This fact lessens tendency to irritate skin and to discolor certain wall and floor surfaces.

Source: Product of the West Disinfecting Company, Dept. CP, 42-16 West St., Long Island City 1, N. Y. . . or for more information check CP 6958 on handy form, pages 2 and 3.

Technical information on calcium carbonates

Analysis, description and other data are provided on the following materials: natural sugar calcite, imported natural calcium carbonate, precipitated calcium carbonate and calcium oxide. Divided into four parts to correspond to these materials, the booklet contains 46 pages. Each section offers introductory comments on sources of the materials and their applications. A listing of the manufacturer's products then follows, with physical and chemical properties in tabular form.

Flow diagrams of the manufacturing process of precipitated calcium carbonate and calcium oxide are given in those sections. Photographs show quarrying and other processing steps. "Calcium Carbonates and Calcium Oxides" is issued by Whittaker, Clark & Daniels, Inc., Dept. CP, 260 W. Broadway, New York 13, N. Y. When inquiring specify CP 6959 on handy form, pages 2 and 3.

Chlorobromomethane is twice as effective as carbon tet in extinguishing fires . . .

material also considered as flotation agent, solvent, organic intermediate, fumigant and other uses

Uses: Currently in use as a fire extinguishing fluid, material also shows possibilities as a fumigant, a high specific gravity liquid for flotation systems, as a solvent or penetrant for paint remover, and as an organic intermediate.

Features: Chlorobromomethane was developed and used in Germany during World War II as a fire extinguishing fluid. Tests show it to be more than twice as effective as carbon tetrachloride for this purpose.

Description: Material is a clear colorless liquid with

CHEMICAL PROCESSING

onyx

**ONYX OIL & CHEMICAL COMPANY
INDUSTRIAL DIVISION**

184 WARREN ST., JERSEY CITY 2, N. J.

CHICAGO • BOSTON • CHARLOTTE • ATLANTA

In Canada: Onyx Oil & Chemical Co., Ltd., Montreal, Toronto, St. Johns, Que. For Export: Onyx International, Jersey City 2, N. J.

West Coast Representative: E. S. Browning Co., San Francisco, Los Angeles

When inquiring check CP 6957 on handy form, pgs. 2-3

MATERIALS

a sweet odor. It is currently being used by USAF in nitrogen pressured, midget type fire extinguisher. Properties of interest are tabulated below:

Properties of CHLOROBROMOMETHANE

Boiling range (5-95% @ 760 mm)	66-68°C
Freezing point	below -65°C
Specific gravity 25/25°C	1.910/1.940
lb/gal	15.98
Flash point	none
Fire point	none
Molecular weight	129.4
Solubility	
per 100 parts water (by wt)	2.4
per 100 parts common organic solvent	miscible

While less corrosive than carbon tetrachloride in many cases, chlorobromomethane should not be used with aluminum or magnesium containers.

Source: Product of Eston Chemicals, Inc., Dept. CP, 3100 E. 26th St., Los Angeles 23, Calif. . . . or for more information check CP 6960 on handy form, pages 2 and 3.

Determine effect of wet ground mica, incorporated into paint films, on resistance to moisture . . .

two previous studies conducted with white lead paints while this one treats of lithopone paints

Report is the last in a group of three concerned with studies to determine the effect of varying quantities of a platy material, wet ground mica, on the moisture resistance of paint films. In the test procedure, the total amount of pigment remained unchanged, but the mica content was varied from 0 to 100% in increments of 12.5%. Mica used was a wet ground mica, 325 mesh, and went to make up a paint film which included lithopone, in an alkyd binder.

Paint was applied with a film applicator to vapor-degreased steel panels 3" x 6" in size, with a hole at one end for hanging. Painted panels were baked for 1 hr at 105°C and aged for 5 days at 50°C. Cross marks were cut through the paint films, and the samples were hung in a salt-fog cabinet. Conditions used in cabinet were a 10% sodium chloride solution at a temp of 95°F. At certain time intervals, the test panels were examined visually and electrographically.

Results show that a certain percentage of platy extender in an alkyd paint formulation increases the salt-fog or moisture resistance of the dry paint film. In addition, the optimum of platy extender to be used differs with the nature of the other pigmentation. In the case of reactive white lead paints, the paint films containing 20 to 25% mica and 75 to 80% white lead exhibited the greatest moisture resistance. In the case of lithopone—with a content of 28.5% zinc sulfide—the optimum of mica content was around 12.5% of the pigment used.

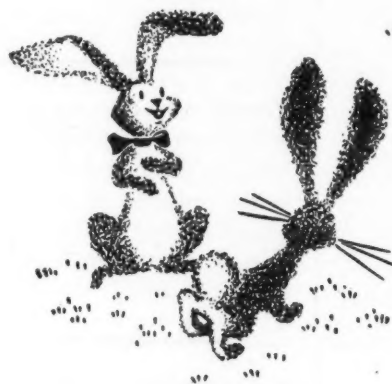
Paint films with a too high percentage of mica content showed an increase in porosity and shortened life of the specimen. Possibility is advanced that with a too high concentration of platy matter, some particles will fail to orient themselves parallel to the paint film and may even cause a greater moisture penetration to the steel base than would occur without the use of platy extender.

(Information from report by Wet Ground Mica Association, Inc., Dept. CP, 420 Lexington Ave., New York 17, N.Y.)

You've asked for more . . .

so Brown Company is

DOUBLING ITS PRODUCTION OF SOLKA®-FLOC



So many new applications have been found for SOLKA-FLOC that demand for it has far exceeded the supply. This is why Brown Company is installing a new plant which will double its SOLKA-FLOC production. The plant will be in operation November 1, 1951.

Avail yourself of this increased supply of SOLKA-FLOC. Let our Technical Service Staff work with you in finding out how you can use SOLKA-FLOC advantageously in your products. Write to Dept. CP-10, Brown Company, 150 Causeway St., Boston 14, Mass.

Uses for SOLKA-FLOC include plastics, rubber and adhesives. It also has wide application in filtration, for flocking, and as a chemical raw material.

BROWN *Company*

Berlin, NEW HAMPSHIRE

GENERAL SALES OFFICES: 150 CAUSEWAY STREET, BOSTON 14, MASS.

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SOLKA & CELLATE PULPS • SOLKA-FLOC • NIBROC PAPERS • NIBROC TOWELS • NIBROC KOWTOWLS • BERMICO SEWER PIPE, CONDUIT & CORES • ONCO INSOLES • CHEMICALS

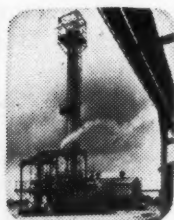
When inquiring check CP 6961 on handy form, pgs. 2-3

Jefferson Ethylene Dichloride

*a widely useful
solvent, extractant,
chemical intermediate*

Best known as solvent with an unusually wide range of applications, high-purity Jefferson Ethylene Dichloride is also a versatile and safe extractant for edible oils, essential aromatic oils and drug principles. It is an important ingredient in fumigants, insecticides, cleansing agents, rubber cements and mastics, and is a valuable chemical intermediate.

From Jefferson's production facilities, Ethylene Dichloride is available in tank cars and 55 gallon drums. For your preliminary investigations, we will be glad to supply samples. Please make requests on your company letterhead.



Ethylene dichloride fractionating tower and purification unit at Jefferson plant, Port Neches, Texas

Jefferson Chemical Company, Inc.

711 FIFTH AVENUE, NEW YORK 22, N. Y.



ESSENTIAL CHEMICALS FROM HYDROCARBON SOURCES

ETHYLENE OXIDE
DIETHYLENE GLYCOL
ETHYLENE DICHLORIDE
ETHYLENE GLYCOL

When inquiring check CP 6962 on handy form, pgs. 2-3

Briefs

From recent literature

Wool's resistance to oxidizing, reducing, or alkaline agents is enhanced, without impairing mechanical properties, by treating with ethylene dichloride in the presence of a reducing agent. The process may be employed for stripping color from wool.

Solvent applications: a) Preparation of diallyl ether dichlorohydrins. b) Sulfonation of polystyrene. c) Lamination with resin prepared from polyvinyl formal resin, diallyl phthalate, and diethylene glycol maleate.

Varnish resins are prepared by reacting certain straight-run naphtha fractions with ethylene dichloride in the presence of an aluminum chloride catalyst. The resins are clear, hard, transparent, and highly soluble in organic solvents.

Vinyl Chloride is obtained in high yield by the following continuous methods: a) Mixing excess ethylene dichloride with caustic from electrolytic cells and heating the mixture to about 300°F. b) Adding ethylene dichloride to excess 25% caustic in aqueous methanol and heating to about 60°C.

These developments are abstracted from recent publications or U. S. patents. They may suggest other applications of Jefferson Ethylene Dichloride in your products or processes.

MATERIALS

Dispersion of vinyl colors is rapid, complete . . .

free-flowing, non-dusting dry powders permit quick change from one color batch to another

Uses: For adding color to all types of vinyl compounds.

Features: Completely compatible with vinyl chloride and copolymer resins. Will disperse rapidly and completely, without agglomeration or undispersed color particles, on open mill, in banbury or pre-blending equipment. Since material is free-flowing, non-dusting dry powder, change can be made quickly from one color batch to another, with minimum discoloration of succeeding stocks.

Description: Vanyl Dispersed Powders are colloidal dispersions of organic pigments in a thermoplastic medium. They contain 50% vinyl and plasticizer. The colloidal process used in making the powders is said to provide a maximum of color strength over and above the actual color content of the dispersion. This is said to be also true when compared on an equivalent basis with banbury masterbatches, flushed colors, or color pastes ground in DOP.

A wide range of standard colors are offered, and more will be added to line as needed. Manufacturer maintains a color-matching lab service which will test submitted neutral base stock, or formulae, to determine how to obtain a good color match with submitted samples.

Source: Manufacturer is Vansul & Company, Dept. CP, Englewood, N. J. . . . or for more information check CP 6963 on handy form, pages 2 and 3.

Prepares bulletin for caustic soda users

Divided into four sections under tabbed headings, 23-page booklet is handy reference for particular problems on purchasing, handling and storage and equipment design. In the section on purchasing considerations, a comparison is made of the various forms of caustic soda as an aid in determining the most suitable and economical type to be used. Under handling and storage are listed such topics as safety precautions, unloading solid and flake caustic soda, tank car construction and unloading liquid caustic soda tank cars.

The section on equipment design deals with the problems of engineering, construction and maintenance personnel. Tables on corrosion rates and materials of construction are given. Additional charts and data show freezing point, specific gravity at various temperatures, NaOH content and density, relative heat content, specific heats and viscosity of caustic soda solutions. "NaOH Caustic Soda" is issued on letterhead request to Pennsalt Chemicals, Dept. CP, 1000 Widener Building, Philadelphia 7, Pa. When inquiring specify CP 6964 on handy form, pages 2 and 3.

Blue-dyed synthetics are fast to light, gas fading . . .

blue concentrate intended for cellulose acetate fibers, does not require assistance of an inhibitor

Uses: Blue dye for cellulose acetate fibers. Suitable for use on Dacron polyester fiber and dynel, as well as on wool, silk, and cotton.

Features: Possesses excellent fastness to both light

CHEMICAL PROCESSING

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MATERIALS

and gas fading without the assistance of an inhibitor. Has very good resistance to perspiration, sublimation, hot-pressing, urea-formaldehyde resins, and dry cleaning.

Description: Fast Blue GLF Concentrated exhibits its good dyeing properties in the temperature range from 180 to 200°F. It should be dyed with 1% sodium meta phosphate on the weight of the fabric. To obtain best tinctorial value and exhaustion properties, 1/4 to 1/2% (on weight of material) mono sodium phosphate should be added to the dye bath.

Increasing the pH of the dye bath above 7.5 will retard the penetration and exhaustion. Anionic rather than nonionic detergents should be used; wetting and leveling agents are recommended. The color may be stripped from dyed pieces with 5% sodium chlorite and 5% formic acid (based on weight of material).

Used with maker's Fast Yellow and Fast Red dyes, varying shades of blue can be attained. Maker has two other fast dyes in stages of development.

Source: Development of the Tennessee Eastman Company, Division of Eastman Kodak Company, Dept. CP, Kingsport, Tenn. . . . or for more information check CP 6965 on handy form, pages 2 and 3.

Rubber makes floor surfacer 3 times as resistant to loads, impact, shock . . .

can be tamped or rolled one-half inch thick, will take traffic immediately

Uses: Suitable for resurfacing large floor areas with relatively thin layer (1/2" thick), and for patching small damaged floor areas. Applicable to indoor or outdoor locations. After being tamped or rolled to floor levels, it will take traffic immediately.

Features: Pulverized natural rubber has been added to base material consisting of asphalt-rock, limestone, and cold asphalt emulsion. This reduces brittleness in sub-freezing weather, provides good traction when wet, and lessens tendency to rut or wave under heavy loads.

Resistance to loads, impact, and shock is 3 times as great as for the same material without rubber addition.

Description: Immediate-Set flooring material is factory mixed and requires no additives or processing before use. Supplied in 100-lb lined fabric bags that are sufficient protection against moisture or evaporation, permitting long-period storage without deterioration. In addition, complete aggregate can be supplied in multi-wall bags with supplementary pail of asphalt emulsion for mixing on the spot.

Source: Product of the Flash-Stone Co., Inc., Dept. CP, 30 E. Rittenhouse St., Philadelphia 44, Pa. . . . or for more information check CP 6966 on handy form, pages 2 and 3.

Tabulates properties of nylon balls

Valves, valve components, specialized anti-friction bearings, detents, and mechanical checks are some of applications of nylon balls whose properties are listed in two-page bulletin. Mechanical, thermal, electrical data are reported. Bulletin NP-101 is issued by Industrial Division, Ace Plastic Company, Dept. CP, 91-30 Van Wyck Blvd., Jamaica 1, N.Y. When inquiring specify CP 6967 on handy form, pages 2 and 3.

ARMOUR Chemical Division

New process produces improved Neo-Fat 3-R for better alkyds

Armour's exclusive low temperature solvent crystallization process is not only the source of many new products, but it is also the key to improved products. An example is found in the case of Neo-Fat 3-R—a fatty acid with high linoleic acid content for better alkyds.

Lower Titer (only 5°C) provides a homogeneous product that insures uniformity in your alkyd formulations. Even in the winter, after outside storage, Neo-Fat 3-R requires a temperature of only 41°F to liquefy . . . thereby eliminating the necessity for a "hot room." And new Neo-Fat 3-R has an excellent color—Gardner 1-2.

Faster Drying—Alkyds formulated with Neo-Fat 3-R dry much harder and faster. A tack-free, air-dry film is formed in 1 1/2 hours . . . a maximum of H pencil-hardness is obtained in approximately 24 hours.

Non-Yellowing—Improved Neo-Fat 3-R is a superior fatty acid designed specifically for non-yellowing modified alkyd resin type enamels and varnishes. The high linoleic acid content and absence of linolenic acid makes solvent crystallized Neo-Fat 3-R an outstanding raw material for producing clean, long lasting whites.

Improved Neo-Fat 3-R is easy to formulate, easy to cook. Its excellent

kettle behavior can be utilized in short, medium or long oil alkyd formulation.

Improved Neo-Fat 3-R is also applicable to paper-sizing compounds, for use in lubricants, printing inks, emulsions, etc. Generally speaking, in the resin field, Neo-Fat 3-R offers manufacturers a better raw material, uniform in color and fatty acid composition, and superior to natural oils in most respects.

New and improved Neo-Fat 3-R is available for prompt shipment in 55 gal. drums and aluminum tank cars. Write today for a sample of Neo-Fat 3-R—see for yourself what this superior solvent crystallized product can do for you.

Specifications Neo-Fat 3-R

	Min.	Max.
Iodine Number	140	143
Acid Value	198	202
Titer, °C	—	5
Color	—	—
Lovibond—5 1/4"	—	0.8R-8Y
Gardner, 1933	—	2
Unsaponifiable	—	0.5%
Moisture	—	0.5%
Appearance	clear	brilliant

Approximate composition

Linoleic Acid	60%
Oleic Acid	40%
Saturated Acid	trace

Arquad 2C kills bacteria and prevents corrosion in water-flooding systems

Since the introduction of water-flooding methods in secondary oil recovery, producers have had two major maintenance problems . . . corrosion of metal equipment and plugging of injection wells. Now, Armour and Company offers a new field tested product that answers both problems and is available at low cost. As little as 5 to 10 ppm. of Arquad 2C will check the growth of bacteria and give immediate, as well as residual, protection against corrosion.

Arquad 2C, a dialkyl dimethyl ammonium chloride, is a quaternary cationic surface active agent which protects metal in contact with corrosive waters by plating out as a thin film. Its powerful bactericidal properties have been verified

by extensive laboratory and field tests. Arquad 2C is compatible with and soluble in all types of water, both fresh and brine—can be used in either acid or alkaline waters without danger of precipitation and is available for prompt shipment in 60% active solution in isopropyl alcohol.

Arquad 2C can help you maintain high water injection rates and obtain greater yields by controlling the formation of such plugging agents as corrosion products and bacteria. Arquad 2C is especially engineered for your use in secondary recovery pressure maintenance, and water disposal operations.

Write today for complete information, engineering service or consultation.

Fatty Acids

Long-Chain Fatty Acid Derivatives

Industrial Oils

New hard high melting wax excellent Carnauba extender

With the cost of Carnauba wax running around \$1.30 per pound, manufacturers are looking for reliable and economical substitutes and extenders. In many industrial applications a satisfactory solution to this problem has been found by using Armour's Armowax.

While Armowax is not the equivalent of Carnauba, it is in the hard wax classification. Armowax is made entirely of domestic materials and because it is a synthetic chemical it can be controlled to give a constant quality product.

Armowax is a brittle, conchoidal fracture, high-melting nitrogen-containing synthetic wax. It is resistant to acid and alkalis, has a light tan color and an acid value of approximately 10. Armowax has approximately the same penetration as Carnauba. Its melting point is 132°C, its Saponification Value is approximately 17 and its Flash Point is 250°C. Armowax is soluble in oleum spirits, Stoddard solvents, VM&P naphtha, turpentine, butanal, methyl or butyl cellosolve, toluene, and xylene at elevated temperatures. At room temperature, Armowax has limited solubility in most common solvents.

Because of its versatility in many non-polish hard wax formulations, Armowax can often be used as either a substitute or extender for Carnauba—particularly in industrial applications. Its availability and extremely low cost have already been used to advantage by many manufacturers. Write today for samples and additional information. Armowax is also available in powdered form at slight additional cost.

Mail this Coupon

Please send additional information on

•
•

Name _____ Title _____

Firm _____

Address _____

City _____ Zone _____ State _____

ARMOUR Chemical Division

Armour and Company

1351 W. 31st St., Chicago 9, Ill.

When inquiring check CP 6968 on handy form, pgs. 2-3



CITRIC ACID

Additional Supplies Now Available

Citric Acid U.S.P.
Citric Acid Anhydrous
Sodium Citrate VIII Granular
Sodium Citrate U.S.P.
Sodium Citrate Anhydrous
Ferric Citrate
Ferric Ammonium Citrate U.S.P.
Ferric Ammonium Citrate N.F.
Ammonium Citrate Dibasic
Potassium Citrate N. F.

Expanded capacity at Pfizer's plant in Groton, Conn., has made possible increased production of citric acid and its many important derivatives.

Pfizer's recently enlarged citric acid plant at Groton, Conn.



Write for technical data and prices to Chas. Pfizer & Co., Inc., 630 Flushing Ave., Brooklyn 6, N. Y.; 425 North Michigan Ave., Chicago 11, Ill.; 605 Third St., San Francisco 7, Calif.



PFIZER

Manufacturing Chemists for Over 100 Years

When inquiring check CP 6969 on handy form, pgs. 2-3

MATERIALS

Tablets release chlorine to rid cooling water of slime, algae

Cooling water can now be economically treated for the elimination and control of slime and algae by using concentrated chlorine-releasing tablets. Called "Chlorets", the tablets are convenient and safe to use. Releasing chlorine as they slowly dissolve, they provide protection for periods from 2 to 9 hours.

Heavy or light doses can be used. A single tablet gives a 1 ppm dosage of chlorine to 850 gallons of water. Delignification or chemical deterioration of cooling tower wood is held to a minimum with dosages which give a 0.5 to 1.0 ppm residual effect when combined with occasional heavy slug treatment for short periods.

(Product of the Gliss'n Products Co., Inc., Dept. CP, 11131 Michigan Ave., Chicago 28, Ill. . . or for more information check CP 6970 on handy form, pages 2 & 3.

Two metal contents offered with latest grease-grade lead naphthenate . . .

standard lead concentrations are 30 and 33%; lower concentrations are available on specification

Uses: Intended for lead-base lubricants.

Features: Solubility in mineral oils is excellent over a wide range of viscosities. Protects iron, steel, and other metals from corrosive effects of moisture, mild acids, etc. Promotes lubricant film strength, oiliness, and anti-seize characteristics.

Description: Grease Grade Lead Naphthenate exhibits moderate extreme pressure properties, and, when used in combination with special extreme pressure additives, it does not detract from the lubricant properties of the finished product. In a typical lubrication oil of 120 SSU @ 210°F a 7.5% concentration of this naphthenate gives a Timken Test of 9250 psi equivalent at 32 lb maximum beam load. (Type of oil greatly affects this rating.)

Product is supplied in two metal contents — 30 and 33%, with lower metal contents furnished if specified. Typical properties are tabulated below:

Property	30% Lead	33% Lead
Mineral oil content, %	18	10
Pounds per gallon	11.5	12.2
Naphtha solubility	soluble	soluble
Mineral oil solubility	soluble	soluble
Clarity	clear	clear
Viscosity (Saybolt Furol Sec.)	21	30

Source: Product of the Witco Chemical Company, Dept. CP, 295 Madison Ave., New York 17, N. Y. . . or for more information check CP 6971 on handy form, pages 2 and 3.

1000-curie radioactive source available for studies of industrial applications . . .

two sources, one cobalt and the other tantalum, prepared in Brookhaven National Laboratory reactor
Thousand-curie sources of gamma radiation will be made available to assist industrial organizations in studies of the applications of radiation to industrial processes. Sources were prepared as part of a program organized by AEC and university laboratories to determine the feasibility

CHEMICAL PROCESSING

MATERIALS

and safety of using radiation from by-products of nuclear reactors in killing bacteria, initiating or accelerating chemical reactions. Industrial concerns can now arrange with Brookhaven to have small samples of materials they wish to study, exposed to radiation from the sources.

The thousand-curie sources, made of cobalt-60 or tantalum-182, each release as much gamma radiation as does 2.2 pounds of radium. Exposure to large quantities of radiation from atomic energy by-products is known to induce chemical changes in molecules. Under intense gamma radiation bombardment some molecules break into parts and then recombine in a different way. Brookhaven scientists have used radiation from a cobalt source to induce polymerization resulting in a clear plastic, produced without the aid of heat, pressure or catalysts.

Second part of program of development of industrial applications involves assistance by Brookhaven to universities holding related research contracts with the AEC. Columbia University is using radioactive sources in studying new methods of food preservation, and the possible toxicity of irradiated foods. At Massachusetts Institute of Technology, research involves studying amount of radiation necessary to kill bacteria and other organisms.

(Further information on the availability of the Brookhaven irradiation service to industrial concerns can be obtained from the Director's Office, Brookhaven National Laboratory, Upton, N.Y.)

Extends line of latices to expand their applications . . .

three dispersions have butadiene-acrylonitrile ratio of 55/45, one has ratio of 67/33

Uses: Aqueous dispersions of butadiene-acrylonitrile copolymers designed particularly for use in coating, impregnating, and compounding applications requiring good adhesion and resistance to oils, greases, alcohols, glycols, and most solvents.

Features: Four additions to maker's 235 and 245 series extend the applications of these synthetic rubber latices.

Description: Additions to the 235 Series include Chemigum Latex 235AHS, Chemigum Latex 235C, and Chemigum Latex 235CHS. These are characterized by a butadiene to acrylonitrile ratio of 55/45. Addition to the 245 Series includes Chemigum Latex 245AHS, with a butadiene to acrylonitrile ratio of 67/33.

Alphabetical designations within each series refer to the type of stabilization. In the 235 Series, AHS is stabilized with an ammonia soap; C and CHS contain a synthetic anionic stabilizer to insure stability in processes which tend to increase the hydrogen ion concentration of the latex. Typical use is in saturating processes where the impregnant is deposited by repeated passes of a web through the bath without coagulation of the latex. Continuous contact with acid salts in most cellulose fibers will precipitate the solids of conventional latex.

The 245 Series includes high solids latices which are reported to give greater solids pick up in some processes and are economical to ship and store.

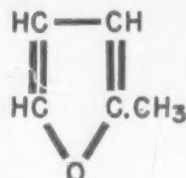
Source: Techni-Guides CL-235-1 and CL-245-1 contain latest, revised information on complete 235 and 245 Chemigum Latex families, issued by The Goodyear Tire & Rubber Company, Dept. CP, Akron, Ohio . . . or for more information check CP 6972 on handy form, pages 2 and 3.

6 NEW DU PONT CHEMICALS

Which one can help you?

2-METHYL FURAN

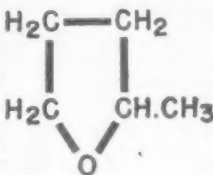
Colorless liquid. B.P. 64°C. Freezing pt. -88.68°C. Flash pt. -27°C. Insoluble in water. Miscible with most organic solvents.



Intermediate—Reacts by addition, substitution, and fissure of the ring.

2-METHYL TETRAHYDROFURAN

Colorless liquid. B.P. 80°C. Freezing pt. -136.1°C. Flash pt. -11°C. Solubility in water at 25°C., 13.87% by weight. Miscible with most organic solvents.

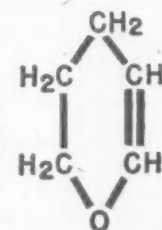


Solvent for many natural and synthetic resins. Useful as an extraction medium.

Intermediate—Reacts by substitution and fissure of the ring.

DIHYDROPYRAN

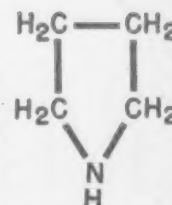
Colorless liquid. B.P. 86°C. Flash pt. -18°C. Solubility in water at 20°C., 3 g./100 cc. Miscible with common organic solvents.



Intermediate—Reaction of double bond yields variety of compounds. Fissure of the ring leads to alpha, omega-disubstituted derivatives. Hydrogenation gives *tetrahydropyran*, an excellent solvent and chemical intermediate. Samples of this derivative are available.

PYRROLIDINE

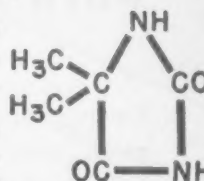
Colorless liquid. B.P. 86-87°C. Freezing pt. -63°C. Flash pt. 3°C. Miscible with water, forming a strongly alkaline solution. Miscible with most organic solvents.



Intermediate—Pure cyclic secondary amine. Reacts by addition, condensation, alkylation, and acylation, forming compounds of possible use in the preparation of rubber accelerators, insecticides, surfactants, and pharmaceuticals.

DIMETHYL HYDANTOIN

White, crystalline solid. M.P. 178°C. Soluble in water, alcohol, diethyl ether, and ethyl acetate.

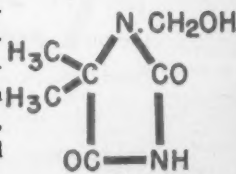


Intermediate—Substitutions can be made in the imino groups. Mineral acids and dilute alkalis split the ring. Reaction with formaldehyde yields *dimethyl hydantoin formaldehyde resin*, a water- and alcohol-soluble resin. Samples of this derivative are available.

MONOMETHYLOL

DIMETHYL HYDANTOIN

White, crystalline solid, M.P. 99-103°C. 18.98% combined formaldehyde. Soluble in water, methanol, and acetone. Slightly soluble in ethyl acetate. Insoluble in hydrocarbons, trichlorethylene, carbon tetrachloride, and diethyl ether.



Intermediate—Reacts as a substituted hydantoin or as an odorless formaldehyde donor.

Availability—Limited quantities of these products are available for research and development. A request on your company letterhead will bring further technical information. E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Dept., Field Research Section, Wilmington 98, Delaware.

When inquiring check CP 6973 on handy form, pgs. 2-3



HOOKE CHEMICALS

work for tanners, too!

Producing plump, smooth-grained leathers from rough, tough hides calls for uncanny skill . . . a happy mating of age-old arts with modern science. Hooker is proud to be a regular, trusted supplier of important chemicals used by the Leather Industry.

All told, 30 different industries use these and other Hooker Chemicals. Modern industry relies on Hooker for exceptional purity and uniformity; carefully scheduled shipments; willing technical help.

Make Hooker *your* source for industrial chemicals. Just write on your business letterhead, asking for General Products List 100, plus Technical Data Sheets on products in which you are most interested.

DELIVERIES—Most of the Hooker Chemicals listed here are readily available now. Others will be available in the near future. Your Hooker sales representative will be glad to keep you posted on the current delivery situation.



TANNERS use some of these Hooker chemicals to: soak hides prior to unhairing, remove hair quickly and safely; others are used to adjust pH of processing solutions, preserve hides and skins from attack by moths, fungus and other organisms.

Sodium Sulfide
Sodium Sulfhydrate
Sodium Tetrasulfide
Caustic Soda
Muriatic Acid
Sodium Benzoate
Paradichlorobenzene

YOU, TOO may be looking for:

high-purity sulfides that dissolve fast, for immediate use

high-strength sulfide solutions that cut your storage requirements

consistent uniformity that helps you standardize on processing methods

• For helpful information on these and other Hooker advantages, write us today.

**HOOKE
CHEMICALS**

From the Salt of the Earth

HOOKE ELECTROCHEMICAL COMPANY

7 FORTY-SEVENTH ST., NIAGARA FALLS, N. Y.

NEW YORK, N. Y. • WILMINGTON, CALIF. • TACOMA, WASH.

SULFUR CHLORIDES • CHLORINATED PARAFFIN • BENZOIC ACID • MONOCHLORTOLUENE • CYCLOHEXANOL • SODIUM BENZOATE

When inquiring check CP 6974 on handy form, pgs. 2-3

MATERIALS

Here's a corrosion-proof cement that sets hard in contact with concrete, metals . . .

resistant to alkalis, acids, solvents, also greases

Uses: Corrosion-resistant cement for joining brick, tile, concrete, glass, and various metals. Lining tanks, covering floors, etc., are specific applications.

Features: Sets hard in contact with concrete or metals — distinguishing it from conventional corrosion-resistant cements, maker reports. Cement is resistant to acids, alkalis, solvents, and grease.

Description: Alfane mortar is prepared by adding approximately 1/2 pint of Alfane Catalyst to 1 gallon of Alfane Mixture. Ratio may be varied somewhat depending upon the temperature and the desired working time. Working time can be increased by reducing amount of catalyst and by lowering temperature. Above formulation yields a working life of about 40 minutes at 75°F; sets hard in 24 hours. Mortar must be used while it is still in a trowelable state.

Source: Product of the Atlas Mineral Products Company, Dept. CP, Mertztown, Pa. . . or for more information check CP 6975 on handy form, pages 2 and 3.

Increased filtration efficiency may save vital materials now wasted . . .

use of synthetics like Orlon is showing much improved recovery of dusts, smokes

Filtration systems are being used more and more widely to recover valuable materials from gas streams and plant atmospheres. Orlon and other synthetic fibers have many desirable properties which are leading to their rapid development to replace conventional cloths for this use. Not only do the synthetics have a far better chemical resistance, but they stand considerably higher temperatures.

The higher filtration efficiency possible by using synthetics will demand their application in recovering materials like cadmium, zinc, lead, and carbon black as defense needs for these critical materials increase. Improved recovery of powdered resins and food products is also possible. Commercial use of Orlon in the recovery of carbon black, for example, increased recovery from 10 to 15% — the difference between a profit and loss. The superior chemical properties, on the other hand, can be seen in a case of recovery of dust from acid fumes in a metallurgical operation. The use of Orlon here kept filter bags on the job much longer and reduced maintenance costs nearly 50%.

(News received from Whitehouse Products, Inc., Dept. CP, Brooklyn, N.Y.)

Primer locks to metal, and holds subsequent finishing coats . . .

eliminates need for chemical preparation of metal surfaces; highly corrosion-resistant

Uses: Primer for ferrous metals, aluminum, and magnesium alloys. Can be used under lacquers and synthetic coatings of every type. Not intended as a finishing coat, although it will serve as a shop-coat to give temporary protection. Not recommended as a single-coat system outdoors.

Features: Reported to eliminate need for conven-

CHEMICAL PROCESSING

MATERIALS

tional chemical surface preparation of these metals. Acts chemically to lock a resinous film into the surface of the metal that provides a hard, tough, corrosion-resistant base for subsequent protective and decorative finishes. Flexibility is excellent, and the bond to the base metal is inseparable.

Properly applied, primer is resistant to acetone and conditions of high humidity. If the coating is pierced, corrosion of the base metal is localized due to the inherent bond.

Description: Resin-based Ferrotite primer air dries to recoat in 5-10 min. Baking hastens curing, and can be carried out after applying finishing coat, providing above drying is observed. When baked at 325°F for 15 to 20 min, Ferrotite resists acetone.

Application of the primer can be accomplished by spraying, dipping, brushing, or roller coating. Dry film thickness in all cases should gauge 0.1 to 0.3 mil.

Source: Development of the Baltimore Paint & Color Works, Inc., Dept. CP, 148-156 Calverton Rd., Baltimore 23, Md. . . . or for more information check CP 6976 on handy form, pages 2 and 3.

Chromate finishing Cd and Zn carried-out at room temp with 'no' gassing . . .

corrosion-resistant coating is good base for organic finishes, can be dyed several shades

Uses: Produces an iridescent, gold-colored chromate finish on zinc plate, zinc base alloys, and cadmium plate which is highly resistant to corrosion. Meets all specifications for corrosion resistant chromate coatings on these metals, and in addition forms a good base for organic finishes.

Features: The "Enthox" coating process can be carried out within the temperature range from 65 to 100°F, and there is usually no objectionable gassing during the operation of the solution to necessitate exhaust ventilation. Although the normal color of the coating can be varied from an iridescent yellow to a yellowish brown color, it can be dyed shades of red and black.

Description: Vessels for holding the Enthox solution can be ceramic, glass, lead, or polyethylene-lined. Zinc or cadmium surfaces must be clean and active before treatment. Various cleaners are available for this purpose.

Cleaned parts are immersed in a water solution of Enthox salts (1½ to 4 oz/gal — depending upon density of color desired) for about 15 sec. No analytical control of solution is required. Fresh additions of salt solution (1 oz/gal) are used for replenishing, and usually replenishing and drag-out counter-balance each other.

Drying of coated parts is somewhat critical because the fresh coating is soft and cannot stand abrading. Drying is best accomplished by means of a blast of cold air or by a centrifugal dryer. Warm air can be used where reduced corrosion resistance of coating is not detrimental.

Enthox coatings normally stand 150 hr or more of salt spray. This is reduced about 10% when it is dyed. Particulars on dyeing are available from manufacturer.

Source: Development of Enthone, Inc., Dept. CP, 442 Elm St., New Haven, Conn. . . . or for more information check CP 6977 on handy form, pages 2 and 3.

IS THIS YOUR SUCCESS STORY?

Each year our customers have been finding new uses, new ideas for glyoxal—ever since we first made it in 1936. So this is their success story. We are now producing substantially greater quantities of glyoxal to meet the growing demand. So, why not investigate glyoxal now—for possible application to your products?

Quick Review of some Outstanding and Successful Uses for Glyoxal

PAPER-COATING

Starch-clay coatings are made more water-resistant through the addition of glyoxal.

CATALYST PURIFICATION

Glyoxal reduces iron impurities in alumina catalysts to the ferrous state, permitting easy removal and preparation of iron-free grades.

WASHABLE WALLPAPERS

Protein coatings are insolubilized with glyoxal to achieve an improved washable surface.

EMBALMING FLUIDS

Cavity fluids containing glyoxal in place of formaldehyde are odorless and safer to use.

ABSORBENT PAPERS

A combination of CELLOSIZING Hydroxyethyl Cellulose and glyoxal increases wet-strength of treated paper without loss of absorbency.

DEXTRIN ADHESIVES FOR ENVELOPE CLOSURES

Addition of glyoxal stabilizes dextrin solutions and prevents curling of paper coated with the adhesive and self-sealing of the closure under high humidity conditions.

TEXTILE FINISHING

Glyoxal is used for shrinkproof and crease-resistant textile finishes.

Pyruvic Aldehyde (methyl glyoxal) is also available in commercial quantities from CARBIDE and reacts similarly to glyoxal in most cases. At present, its major use is in the synthesis of the important new insecticide, allethrin.

more information

Yes—a new bulletin, "Glyoxal and Pyruvic Aldehyde," has just been prepared. Write or call any of our offices—please ask for Form 7607.

The term "Cellosize" is a registered trade-mark of Union Carbide and Carbon Corporation.

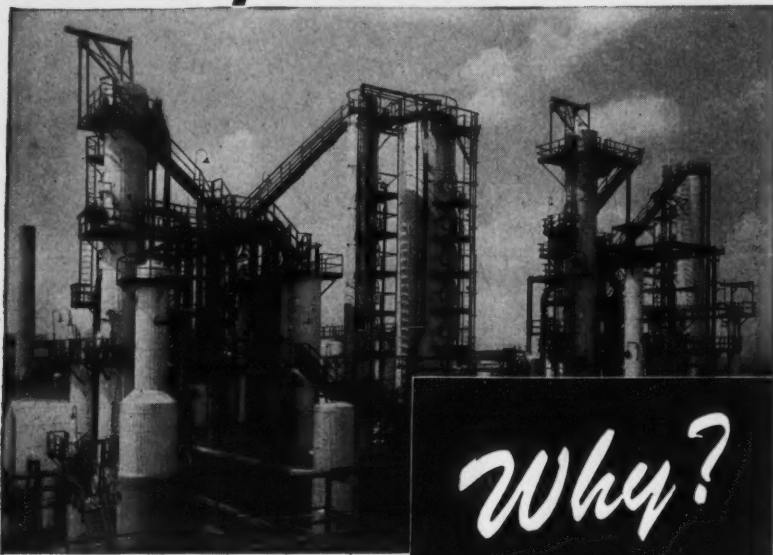
CARBIDE AND CARBON CHEMICALS COMPANY

A Division of
Union Carbide and Carbon Corporation
30 East 42nd Street **NEW YORK 17, N. Y.**

Offices in Principal Cities
In Canada:
Carbide and Carbon Chemicals, Limited, Toronto

When inquiring check CP 6978 on handy form, pgs. 2-3

Industry selects Furfural



SELECTIVE SOLVENTS

It is enlightening to examine the reasons why furfural has been chosen for so many applications involving solvent extractions.

- (1) Furfural is a polar molecule and gives a sharp separation between many closely related compounds. Its high specific gravity permits rapid separation.
- (2) Furfural is a very stable compound and may be recovered almost quantitatively for reuse.
- (3) This solvent is easy to handle and safe to use.
- (4) The furfural is produced in large quantities from replaceable raw materials and is consistently low in price.

As a selective solvent, furfural is now used in treatment of wood rosin to remove color bodies; in extraction of lubricating oils and furnace oils to eliminate sludge forming materials; in refining of diesel fuel to raise cetane values and in processing of glyceride oils to separate drying from non-drying portions. In a modified technique, it is used as an extractive distillation agent for separating C-4 hydrocarbons.

Many mixtures lend themselves to selective solvent refining. If you would like to know more about the techniques employed, write for our Bulletin SS.



The Quaker Oats Company

CHEMICALS DEPT.

336B THE MERCHANDISE MART
CHICAGO 54, ILLINOIS

New York, Room 536B 120 Wall St., N. Y. 5, N. Y.

In San Francisco, The Griffin Chemical Company • In the United Kingdom, Imperial Chemical Industries, Ltd., Billingham, England • In Australia, Swift & Company, Pty. Ltd., Sydney • In Europe, Quaker Oats Graan-
producten N. V., Rotterdam, The Netherlands; Quaker Oats (France) S. A. 42, Rue Pasquier, Paris 8E, France.
In Japan, F. Kanematsu & Company, Ltd., Tokyo.

When inquiring check CP 6979 on handy form, pgs. 2-3

MATERIALS

Damp, corroded surfaces made resistant to rust by one-coat paints . . .

no surface preparation or primer needed, resist alkalis and acids

Uses: Recommended as a single-coat anti-rust paint for metal surfaces. Also useful as a preservative for wood. Applicable to interiors as well as exteriors, and is finding value as a marine or under-water coating.

Features: Requires neither surface preparation nor primer. Resistant to action of acids, alkalis, salts, brine, and temperatures up to 200°F. High penetration allows painting on damp surfaces.

Description: Anti-rust paints include PCA-100 Black and PCA-101 Clear. They can be applied by brush or spray over rust without previous wire-brushing, scraping, or sandblasting. Only requirement is to remove loose particles and grease from surfaces. Paints penetrate the adherent surface rust, seal it off, and prevent further corrosion.

PCA-100 is intended as a finish coat where black is acceptable. It cannot be painted over. PCA-101 is intended for rust-proofing in application where a final top coat of some other formulation is desired.

Source: Products of the Paint Corporation of America, Dept. CP, Fidelity Bldg., Cleveland 14, Ohio. . . or for more information check CP 6980 on handy form, pages 2 and 3.

Herbicide must contact to kill . . .

no toxic residues, killing rapid

Uses: Herbicidal oil destroys herbaceous portions of all plants on which it is sprayed. Being used on railroad right of ways.

Features: Since the oil must actually contact the plant to be destroyed, maker reports there is no danger to plant life adjacent to areas treated.

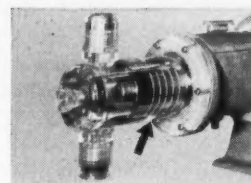
Description: Herbicidal Oil No. 6 is a medium-weight, straw-colored petroleum product with a high aromatic content. It contains no additives or fortifying agents. Because it is slowly volatile, it leaves no oily or greasy residue after a few hours when used as recommended.

Non-irritating to flesh, flows freely for easy spraying, is classed as non-inflammable, and is non-corrosive toward metals.

Oil No. 6 is not a selective herbicide, therefore its action is not dependent

Du Pont plastic superior to all other gasket and packing materials in chemical inertness

Du Pont "Teflon" tetrafluoroethylene resin inert to practically all chemicals, serves up to 500°F., has unique non-adhesive properties.



Uses: Gaskets; packing for pumps, valves, pistons, agitators; non-adhesive surfaces for use with sticky materials; electrical insulation.

Features: Inert to all chemicals except molten alkali metals and fluorine under ex-

teme conditions, has zero moisture-absorption, serves at temperatures from -320°F. to 500°F., has extremely low coefficient of friction. Tough, resilient "Teflon" outlasts other gasket and packing materials as much as 300 times in some cases. Because of its unusual non-adhesive properties, the tackiest materials show little tendency to stick to "Teflon." It also has outstanding electrical properties.

Description: Du Pont supplies as molding powder, tape, and aqueous dispersions.

Demand for "Teflon" currently exceeds supply. However, we suggest you investigate its versatile properties for future application. We'll gladly discuss the availability of quantities for development work, and supply names of molders and fabricators of sheets, rods, tubes, or finished parts. For further information and booklet "Teflon" in Gaskets and Packing," write:

Source: E. I. du Pont de Nemours & Co. (Inc.), Polychemicals Dept., Wilmington 98, Delaware.

*REG. U. S. PAT. OFF.



BETTER THINGS FOR BETTER LIVING
... THROUGH CHEMISTRY

When inquiring check CP 6981 on handy form, pgs. 2-3

Can CARBON DIOXIDE solve one of your processing problems?

Each year industry is finding more applications for carbon dioxide. Some of these involve its use as an inert gas in processing paints, lacquers, resins, plastics, drugs and foods—it's the same gas that puts the "life" in soft drinks and is "death" to fires. Used in solid form ("DRY-ICE") carbon dioxide makes an ideal in-transit refrigerant as well as a cooling agent for shrink fitting and other industrial applications.

For the user of carbon dioxide, Pure Carbonic has developed the Carboflex CO₂ Supply System which insures a gas supply in any required quantity.

A handy directory listing the points that make up the nation-wide Pure Carbonic distribution network is available. If you would like a copy, or, if you desire the help of a Technical Sales Service man in the solution of a problem involving the use of carbon dioxide, please write to Dept. CP1859 at the address below.

PURE CARBONIC COMPANY

A Division of Air Reduction Company, Incorporated

GENERAL OFFICES: 60 EAST 42nd STREET, NEW YORK 17, N. Y.

Nation wide CO₂ Service—Distributing Stations in Principal Cities

When inquiring check CP 6982 on handy form, pgs. 2-3

CHEMICAL PROCESSING

MATERIALS

on its translocation. Rate of killing is rapid, becoming evident a few hours after application. Killing is usually complete in a day or two.

No residue is left which will be permanently toxic to the soil or to livestock.

Application should be made after vegetation has become established, but before its mass can prevent uniform coverage. It should be used as supplied, and 80 gal/acre has been found adequate for very heavy stand of weeds. Vegetation in early stage of development can be killed with 60 gal/acre coverage. Number of applications required per season depends upon control desired. Three applications of 60 gal/acre should control undesirable annual plants.

Source: Available in carload lots only from Lion Oil Company, Dept. CP, ElDorado, Ark. . . or for more information check CP 6983 on handy form, pages 2 and 3.

Lubrication of nylon yarn reduces wear of tubes, needles of knitter . . .

materials available for either mono- or multi-filament yarn

Uses: For lubrication of either mono- or multi-filament nylon yarn in knitting machines.

Features: By eliminating friction of the yarn with needles and carrier tubes, machine wear is cut.

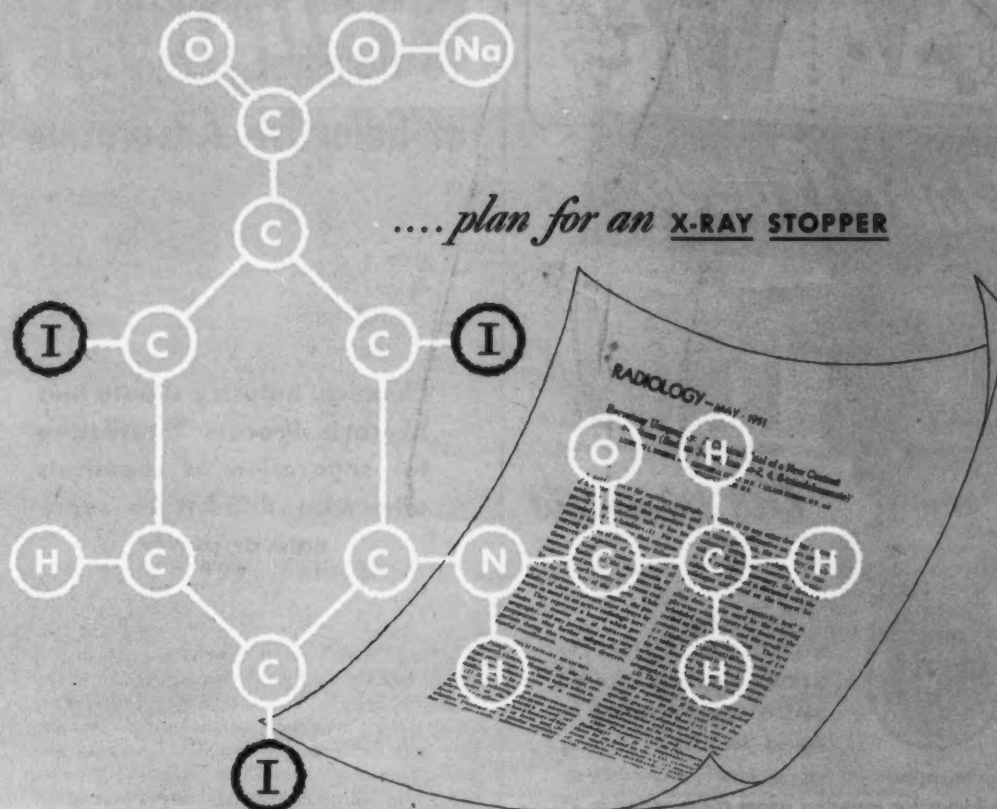
Description: Nylon Oil #82 is recommended for use with mono-filament nylon yarn. It has a high penetrating power and softens the yarn as well as reducing friction.

Macco Glycerine Softener is an emulsion which is used to soften and penetrate the adhesive synthetic resin which holds the yarn together.

Although the two materials are applied by widely different methods, due to the nature of the yarn in each case, the result with either mono- or multi-filament yarn is reported to be a more even knitting job with less wear to the machine.

Source: Products of the Mac Chemical Company, Dept. CP, 5113 Kingston Pike, P.O. Box 72, Knoxville, Tenn. . . or for more information check CP 6984 on handy form, pages 2 and 3.

For more information on product at right, specify CP 6985 . . . see information request blank between pages 2-3.



In the Mallinckrodt laboratories, skilled teams engage in continuous research to create specific new compounds—compounds to do everyday jobs *better* or to satisfy long-felt needs for the solution of *difficult* problems. An example is Urokon Sodium, which is opaque to x-rays. Injected intravenously, it is excreted by the kidneys, giving the diagnostician a clear picture of the urinary system on an x-ray film. The high opacity, low toxicity and great solubility of Urokon® Sodium were combined in one product after years of experimenting with various molecular arrangements of iodine in combination with other elements.

A deep respect for creative chemistry is shared by everyone in the Mallinckrodt organization. It is reflected in finer manufacturing processes and careful workmanship in the manufacture and development of fine chemicals not only to meet the precision standards of the medical profession but in the development of intermediates for industry as well.

MALLINCKRODT CHEMICAL WORKS • St. Louis • New York • Montreal

Mallinckrodt

ORGANIC INTERMEDIATES • INORGANIC
CHEMICALS • CHEMICALS FOR ELECTRONIC
USES • METALLIC SOAPS • ANALYTICAL
REAGENTS • PHOTOGRAPHIC CHEMICALS



Don't Guess...



KNOW

the pounds

BUILDERS SHUNTFLO STEAM METER (Model SMDH) is especially designed for district heating

companies, apartment houses, hotels, and commercial buildings for metering steam consumption in 1" and 1½" lines. Compact, easy to install, accurate—Model SMDH "rings up" the steam pound-by-pound with watch-dog dependability. Shuntflo is self-contained and self-operated. The steam flowing through the pipeline drives the direct-reading totalizer, providing information on steam consumption that's accurate within $\pm 2\%$ under most conditions. Model SMDH is available with threaded or flanged ends for 1" lines — with flanged ends for 1½" lines. Also available is Model SMKS for 2" to 14" lines. For Bulletins 400-F1 and 400-F2, the complete story on Builders Shuntflo Meters, address Builders-Providence, Inc., (Division of Builders Iron Foundry), 387 Harris Ave., Providence 1, R. I.

BUILDERS makes a complete line of flow meters and controllers for liquids, steam, air, gas, and dry materials . . . mechanical and differential . . . including The Venturi Meter and Chlorinizers (chlorine gas feeders).

BUILDERS PROVIDENCE

Instruments

BIF INDUSTRIES

BUILDERS

When inquiring check CP 6986 on handy form, pgs. 2-3

Aromatic Production To Be First Large-scale Application of Selective Adsorption Using Silica Gel

Chemical industry should find Arosorb Process interesting for separation of chemicals otherwise difficult to separate or purify

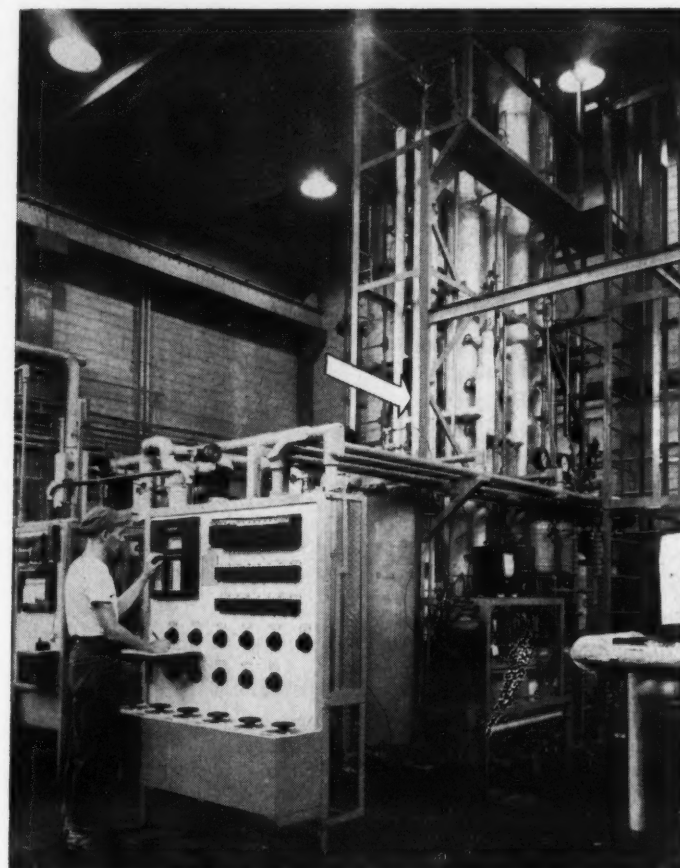
IMPORTANT to the chemical industry is the Sun Oil Company's announcement of the "Arosorb Process" for selectively adsorbing aromatics from a mixed saturate-aromatic stream. This will mean an addition of 13 million gallons of benzene, 30 million gallons of toluene, and 15 million gallons of xylene per year to the present critically short supply of these materials. Eight years in development of the process has culminated in a successfully operating pilot plant. Ground for an \$8 million production unit will be broken shortly at the Marcus Hook, Pa., refinery, and the vital fluids are expected to begin flowing by the spring of '53.

Even more important to the chemical industry is the great flexibility of the Arosorb Process. Sun eventually intends to adapt and lease its process for separation of chemicals otherwise difficult to separate because of close boiling points — olefins, solvents, oils, and possibly vitamins. In fact, any materials having different adsorption coefficients can be theoretically separated.

The new plant will couple Sun's "Arosorber" with a 10,000 bbl/day Houdriformer, although it could be coupled with any of the new catalytic reformers. The catalytic reforming process converts naphthenes in a carefully fractionated straight-run gasoline into an aromatic-saturate mixture, which is then re-distilled to prepare an aromatic-rich feed for the Arosorber. Aromatic effluent from the Arosorber is then finally fractionated to produce specification products — benzene, toluene, and xylene.

The Arosorb Process

The Arosorb Process will be the first large scale commercial application of selective adsorption utilizing silica gel, a synthetic amorphous form of silica with unusual effectiveness for preferentially adsorbing one type of compound from a mixture of several types. Each particle of silica gel has countless micro-pores averaging about one ten-millionth of an inch in diameter. These pores offer surface



Pilot plant Arosorber that has paved the way for commercial production of aromatics by selective adsorption from catalytically reformed petroleum fractions. Arrow points to silica gel adsorption column

area for adsorption of about 90 acres per pound. Because of size, weight, or arrangement, each type of molecule is held by the silica gel with a differing degree of tenacity. This property permits selective adsorption.

In the process, a stream containing the desired aromatics is passed through a bed of silica gel which retains the aromatic portion and allows the paraffinic hydrocarbons portion to pass out the bottom of the bed. When the capacity of the gel for adsorption of aromatics has been reached, the feed is shut off and the gel bed desorbed. One of two desorbents (butane) washes out the residual saturate material from the charge stock, and then the other desorbent (mixed xylenes) gradually desorbs or displaces the aromatics adsorbed by the gel. When de-

CHEMICAL PROCESSING

sorption is substantially complete, the charge stock is re-admitted and the cycle repeated.

In operation the flow through the case holding the silica bed is continuous and there is a gradual increase and then decrease of the various components in the effluent as the cycle progresses. The saturate effluent flows to a train of two distillation columns, in the first of which the butane desorbent is removed and recycled. The second column separates the saturate portion from the mixed-xylene desorbent portion which is recycled.

The pilot plant

The successfully operating pilot plant has been put through almost every conceivable role to determine its applicability to production: gel cases have been scaled-up (from 3 inches to 3 feet in diameter); feed has been varied widely (typical is a 30% aromatic feed, equal parts benzene and toluene, boiling between 140 and 231°F); and final products have been produced with a wide range of specifications. In general, no problem has been experienced in making ASTM specification benzene and toluene, but a light sulfuric acid treatment is usually required to meet the acid wash specification. Not much acid is required because olefins (which cause off-test acid wash) are largely rejected to the saturate product in the process.

Under all circumstances the recovery of available aromatics is high, but it is diminished somewhat as shown in the following table at very high levels of aromatic purity:

Percent Purity	Percent Recovery
98	90
96	94
94	96
90	98

Success of the process is based on Sun's know-how in supporting and distributing the gel in the cases. The Sun unit will have six silica gel cases 10 feet in diameter and about 20 feet high, containing a total of about 500,000 pounds of gel. Each case will go through 15 cycles per day. Cycles will be staggered to provide substantially continuous operation. A gel life of one year is predicted from pilot plant studies. Gel will be protected from moisture and other poisons by regenerative, pretreatment drying on feed streams entering cases. At the end of its life the gel will be discarded and replaced with fresh material without disrupting continuity of operation.

Cyclic operation of the gel cases will be automatically controlled. A meter in the effluent line from each case maintains the flow rate constant at any desired level, permitting quantity of charge and of desorbents to be controlled wholly by a cycle timer. Staggered operation of the cases will also be controlled by this timer.

Effluent will be accurately and automatically cut from the saturate to the aromatic product line by an instrument developed in Sun's labs. This instrument measures an appropriate property (such as refractive index) of the effluent, and can be adjusted to switch the product valves at predetermined times after this measured characteristic of the effluent passes through a minimum.

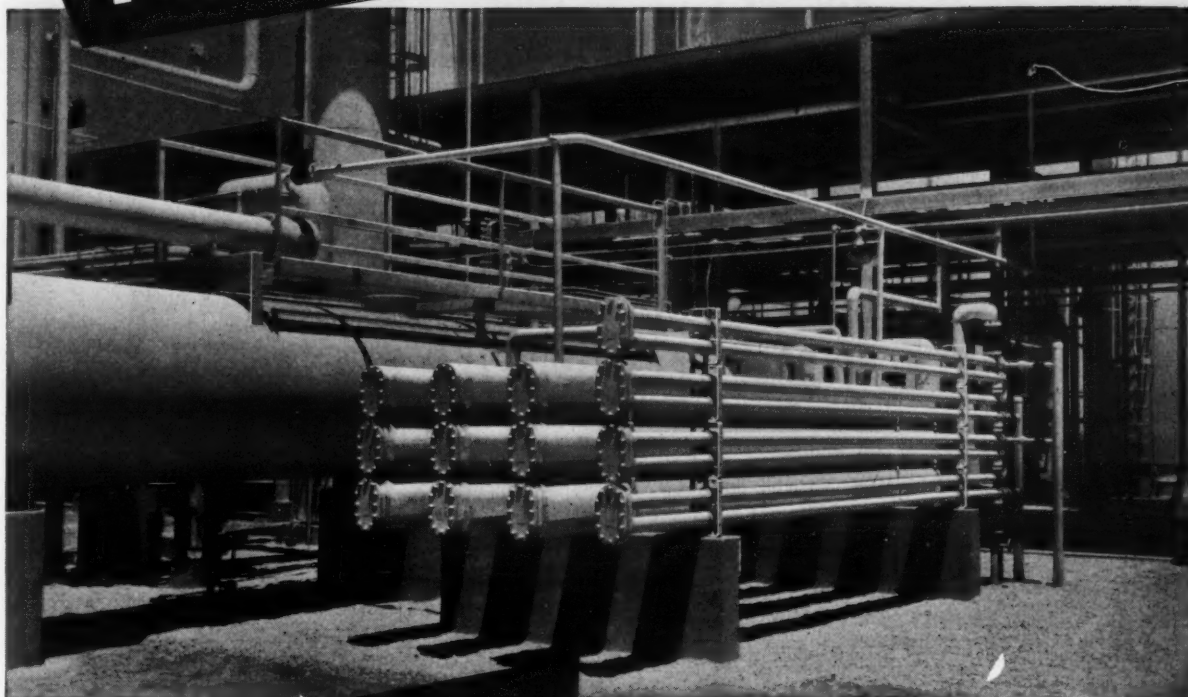
Absorbs hydraulic ramming when liquid lines are suddenly shut off

A rubber device, called a "surge boot", that cushions against high pressures (hydraulic ram effect) caused by the sudden shut-off of liquid lines has been announced by B. F. Goodrich. The device weighs merely 15 pounds, and is playing an important role on the fuel line of the Air Force's new flying filling station — the Boeing KC-97.

(B. F. Goodrich Company, Dept. CP, Akron, Ohio.)

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in your plant



with BROWN FINTUBE

sectional hairpin heat exchangers

● You'll get almost unlimited flexibility to meet changes in duties, plant re-arrangements, etc., with Brown Fintube Sectional Heat Exchangers. By simply adding a few sections to your existing exchangers, or removing a few sections, or changing the series-parallel manifolding, change-overs can be made easily and quickly. You can be operating **efficiently** on almost any new or different duty, on short notice, with a minimum of expense for new equipment, and without obsoleting any of your former facilities.

For utmost efficiency and economy use Brown Fintube Sectional Heat Exchangers throughout your plant. **Write for Bulletin No. 481.**

THE BROWN FINTUBE CO.

Elyria, Ohio

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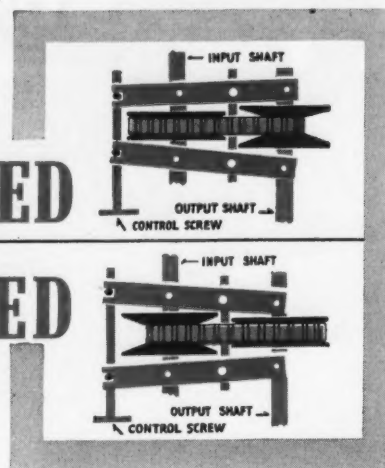
When inquiring check CP 6987 on handy form, pgs. 2-3

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of positive settings!

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ALL INDUSTRY USES P.I.V.*
*Positive, infinitely variable

When inquiring check CP 6988 on handy form, pgs. 2-3

IDEAS

Rubber masks are cured in less than half the time by improved system . . .

space heater provides large volumes of hot air to double-deck conveyor oven

A unique conveyor oven system, coupled with a space heater that provides large quantities of heated air, has cut the curing time of rubber novelty masks from about one hour to about 27 minutes at Bayshore Industries, Inc., Elkton, Md. This company was the first in the U. S. to manufacture rubber masks and false faces on a mass production basis by a mold dipping process. Heater has a stainless steel combustion chamber for longer service life. Refractories in previous heaters used in the plant deteriorated badly after 15 months of operation.

In making masks, double-faced plaster or aluminum molds are dipped into a mixture of rubber latex and compounding chemicals having a water content of 40%. Freshly dipped masks, on the molds, travel on a conveyor system into the lower section of a double-deck oven where 160°F circulating air drives off moisture, solidifies mask on mold and pre-cures it.

At the end of lower section, masks are stripped from molds by workers with hot knives, and are then fitted to wire-mesh, formed domes attached to a continuous wire-mesh conveyor running through the upper oven. Air is



Stripping pre-cured rubber masks from two-faced molds with hot knives. After being stripped, masks are cured in a 350°F oven

circulated through the upper oven to maintain the 350°F necessary to cure the masks.

High-temperature air is fed to the top of the upper oven, entering through four slotted openings. Air leaves the top oven through a duct that leads to a sheet metal plenum under the lower oven. Air discharges upward into the lower oven through 10 openings, and returns to heater through duct. Some of the moist air is vented through a stack, and fresh air to replace this is taken in through a louvered opening in the return duct to heater. All ductwork and the heater casing are insulated with Fiberglas.

The Dravo "Counterflo" heater is located in a lean-to outside the drying oven building. It has a capacity of 1,000,000 Btu/hr and is fired with No. 4 fuel oil. Air is drawn into its base by a fan rated at 11,000 cfm. To obtain high temperatures, part of the air is recirculated through the heater by means of a manually operated damper in a by-pass duct.

Operation of heater is fully automatic. A temperature

CHEMICAL PROCESSING

IDEAS

controller in the oven regulates modulating burner of the heater. Thus, the heater automatically provides the proper temperature for varying loads on conveyors. Quality of masks is better because of precise temperature control.

Following successful adaptation of the heater to this one oven more than a year ago, Bayshore recently equipped a similar oven with another 1,000,000 Btu/hr Dravo unit that operates essentially in the same manner.

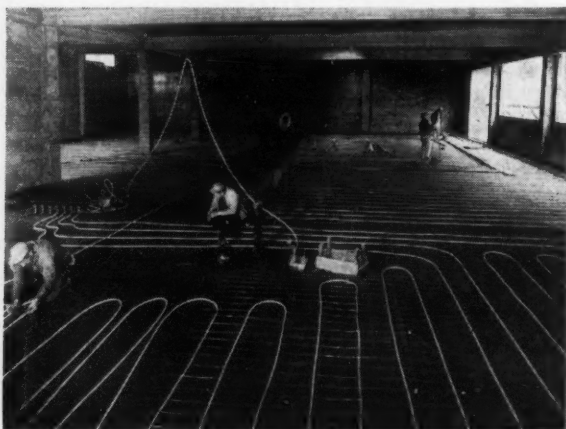
(Information submitted by Dravo Corporation, Dept. CP, Neville Island, Pittsburgh 25, Pa.)

Long lengths of plastic tubing speed installation of radiant heating systems . . .

for use in new construction or replacing conventional heating systems in existing buildings

Plastic tubing was chosen for an industrial radiant panel floor heating system in a Portland, Oregon plant because of its resistance to rot, rust and electrolytic corrosion, ease of installation, low friction loss and long lengths in which it is available.

In making this installation, tubing was first laid on rough flooring and held in position with hooks while return bends were made. Wire mesh was then placed on tubing and



Radiant heat system uses plastic tubing

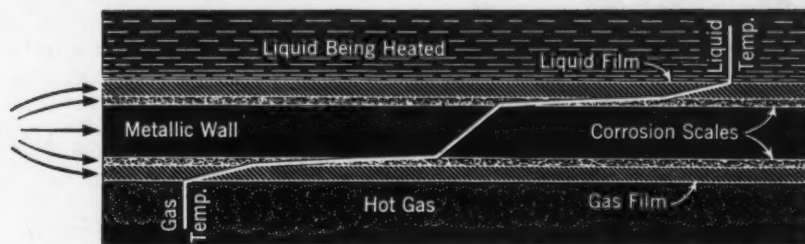
mesh and tubing were tied together at 2' intervals with binder twine. Hooks were removed after tubing was secured, and entire system was filled with water to eliminate air in the line. Pressure was maintained on system to prevent collapse of tubing while 2 1/2" of concrete was poured.

In addition to this installation in the new plant building, tubing for radiant heating was also installed in existing structures, tubing being laid over old floor surfaces. About the same procedure was observed here with concrete topping being poured over the assembled tubing.

Both this tubing and flexible pipe produced by the same company can be furnished in extremely long lengths and require a minimum number of fittings. They remain flexible at temperatures ranging from -70 to 140°F and resist interior build-up. While the tubing is well suited for such applications, manufacturer generally recommends pipe for radiant heating installations.

(Carlton "C" tubing and Carlton "E" pipe are made by Carlton Products Corp., Dept. CP, 10225 Meech Ave., Cleveland 25, Ohio.)

Can you figure all the walls in heat exchange?



Add two unknowns to the heat transfer rate of a metal — and what do you get?

You get the problem that faces a designer trying to calculate the true performance of a proposed heat exchanger.

The rate of heat movement through a metal itself—of any thickness—is easily determined. But the effect of the gas or liquid films that will adjoin the metal wall is difficult to predict. And even more uncertain and more damaging, is the scale or oxide layer that forms on the metal surfaces.

The nature of the scale layer — its thickness, density, and chemical composition, is governed by conditions that vary in each case. But the insulating, or interfering, nature of the scale layer is tremendous.

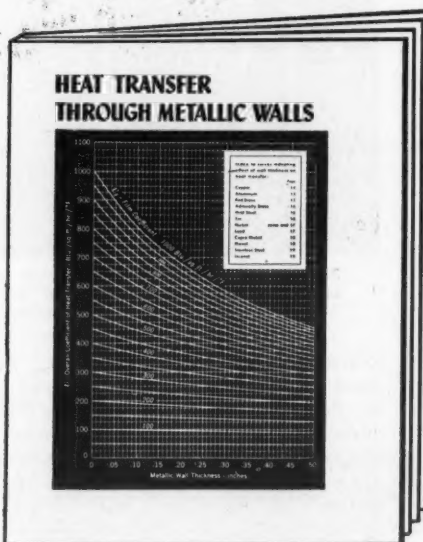
Engineers are fast learning to hold scaling difficulties to a minimum—through the selection of metal. Nickel and high-Nickel alloys are among the preferred metals because of their resistance to scale formation.

Nickel forms a very thin, tough, oxide layer for self-protection. This layer is so thin it is often invisible. But, this thin layer prevents a buildup of more oxide, protects the metal against corrosive attack that would form other coatings.

The mechanical properties of Nickel alloys give high resistance to erosion or pitting from gas, steam, or liquid. Its strength and toughness also permit thinner walls, resulting in faster heat transfer.

INCO has issued a booklet—HEAT TRANSFER THROUGH METALLIC WALLS—that contains invaluable information on heat exchange performance of many metals. A copy of this bulletin will be sent free on request.

And if you have a specific heat transfer problem—the solution may be one of the INCO Nickel alloys. Right now, of course, much of Inco's production is being diverted to defense. But INCO's Corrosion Engineers are eager to aid in overcoming corrosion obstacles, both for defense operations now, and for future projects. Write us about your problem, giving full information.



The International Nickel Company, Inc.
67 Wall Street, New York 5, N. Y.

When inquiring check CP 6989 on handy form, pgs. 2-3



CONVEY BULK MATERIALS FAST

● Exclusive Ajax Lo-Veyor design answers processing and production requirements in chemical plants because:—

- 1 Only three basic parts...pan or tube... enclosed vibrating drive...motor.
- 2 Open or closed pan models combine convenience and eliminate contamination.
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- 5 Self-contained,—low installation and maintenance cost.

Used by foremost chemical, food and other manufacturers. Write giving outline and sketch of your requirements.

**AJAX FLEXIBLE
COUPLING COMPANY INC.
WESTFIELD, N. Y.**

When inquiring check CP 6990 on handy form, pgs. 2-3

IDEAS

Basic unit design allows changes in style of radio console without retooling . . .

molded styrene or other plastic, in conjunction with metal, used to build cabinets

Styrene and various other plastics are being molded with metal parts to build a basic radio cabinet. By changing dial, knobs, or speaker mounting, this unit can be made to look like totally different styles, it is reported. The fact that six or eight different-looking cabinets can be made without complete retooling is an economic advantage.

(General Electric Chemical Division, Dept. CP, operated custom molding plants in Taunton, Mass., and Decatur, Ill.)

Good housekeeping secret of tidy plant making 'messy' product . . .

ink maker also has unique system for keeping running inventories; plant safety highlighted

Manufacture of a "messy" product such as ink might be associated with an equally messy and untidy plant. Such is not the case at the new plant of Bensing Bros. & Deeney, Philadelphia, makers of "BBD" letter press, lithographic, and aniline printing inks. Good housekeeping has been worked out to the most minute detail in this plant.

One typical example is in the area where raw ingredients for aniline inks are combined in agitator tanks. Occasional spillage does occur here and could in time lead to a pile-up that would be difficult to clean. Agitator tanks are in a row that extends nearly the breadth of the plant. They are mounted on legs over a slightly re-



Recess in floor beneath ink agitator tanks is filled with sand. Ink spill-overs are absorbed, and sand is removed periodically to keep processing area clean

cessed area in the concrete floor. Recess is filled with sand that absorbs spill-overs. Removing sand periodically, Bensing Bros. & Deeney finds this a very satisfactory means for keeping their processing area clean. Dripings that occur on unprotected floor areas are cleaned up immediately. Nightly floor mopping is standard practice in this plant's maintenance program.

A unique system is employed for keeping a running plant inventory of raw materials in storage, the status, as well as manufacture. Black felt bulletin boards



Just a flick of a switch, then read the Brookfield dial, and you have your viscosity determination in centipoises. The whole operation, including cleaning up, usually takes less than a minute.

Available in a variety of models suitable for extremely accurate work with both Newtonian and non-Newtonian materials, Brookfield Viscometers are portable and plug in any A.C. outlet — can be used in Lab, Plant or both.

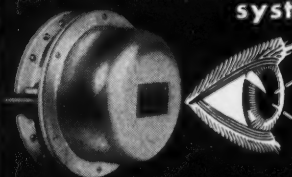
Write today for fully illustrated catalog showing Brookfield Viscometers adaptable to any viscosity problem from less than one to 32,000,000 centipoises.

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Brookfield ENGINEERING LABORATORIES, INC.
210 Porter St., Stoughton, Mass.

When inquiring check CP 6991 on handy form, pgs. 2-3

A "MUST" in modernizing bulk material handling systems



"The Eyes of the Bin"

BIN-DICATOR BIN-LEVEL INDICATOR

BIN-DICATOR "keeps an eye" on levels of bulk materials in silos, hoppers, bins, chutes and automatically reports to central control point. Prevents over-filling; prevents overfeed and underfeed to conveyors and filling equipment; prevents delays and waste. Low cost, easy to install, simplest operation. Widely used.

BIN-FLO Aerator Units keep dry, finely ground materials moving in bins, hoppers, chutes; prevent packing and bridging.

THE BIN-DICATOR CO.
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**NEW
20-PAGE
BOOK
FREE**

When inquiring check CP 6992 on handy form, pgs. 2-3

IDEAS

(similar to those used for menus at lunch counters) with press-on white plastic letters and figures make up the system. When materials are added to or withdrawn



Black felt bulletin boards with press-on white plastic letters and figures are used for keeping a running plant inventory

from storage or receiving, or when a batch of ink receives treatment in process, the notation after the code designation of the material or batch is easily altered to show the latest status.

Layout of the plant is such that there is a smooth flow of materials from receiving, through processing, to shipping. Safety is highlighted throughout — Bensing Bros. & Deeney's aim is to have the safest plant in the country. An example here, is the elevated platform that completely surrounds the loading side of the row of agitator tanks to prevent operators from falling during the tank loading operations. A fork lift truck positions a palletized load of ingredients over the top of a tank from the front of the row, and the operator standing on the platform grabs the ingredient sack and dumps it into the tank. Operator moves safely up and down the row of tanks on the platform while fork truck follows him with the load.

(These interesting facts were noted on a recent visit to Bensing Bros. & Deeney, Dept. CP, 3301 Hunting Park Ave., Philadelphia 29, Pa.)

Simulates conditions wheels and casters get in service

Aerol Company, Inc., has complete laboratory facilities for testing performance of its line of industrial wheels and casters.

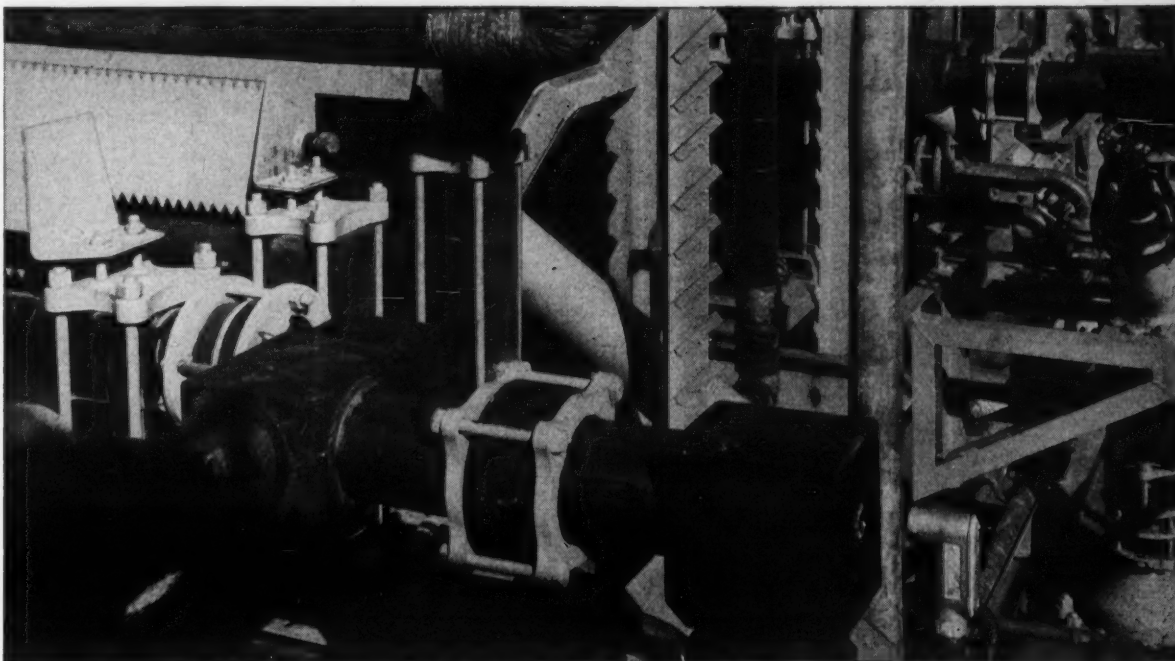
Test equipment consists of a large revolving drum located beneath a device which is capable of testing three wheels or casters concurrently. 'Bumps' can be bolted onto the drum and shock loads can be applied to simulate service conditions. Surface coatings can be applied to the drum for the purpose of studying tread materials intended for use where acids, fats, etc., exist.

(Summary of information received from Aerol Co., Inc., subsidiary of Lockheed Aircraft Corp., Dept. CP, 2820 Ontario St., Burbank, Calif.)

OCTOBER 1951

QUESTION:

What pipe handles ALL corrosives?



COURTESY OF TENNESSEE PRODUCTS AND CHEMICAL CORPORATION

ANSWER:

"KARBATE" BRAND IMPERVIOUS GRAPHITE

For conveying, processing and storing *all* types of corrosive liquids and gases, hot or cold, whole systems are now being built 100% with "Karbate" impervious graphite pipe, fittings, valves, pumps, heat exchangers, towers and other units needed. Here are the reasons:

★ When you use "Karbate" impervious graphite, you don't need to use a variety of corrosion-resistant materials.

★ "Karbate" impervious graphite pipe keeps production rolling. You don't have costly "down time" because of corrosion in the system. There is no loss of product.

PLUS FACTORS OF "KARBATE" IMPERVIOUS GRAPHITE PIPE:

- Both acid resistant and alkali resistant
- Light in weight, easy to machine and assemble
- No metallic contamination of product
- Immune to thermal shock

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It gives you *double the usable light!*

It's *leakproof!*

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It delivers the *whitest, brightest light!*

It's the "Eveready" No. 1050 flashlight battery, made with the zinc electrode inside a carbon jacket — just the reverse of every other battery on the market.

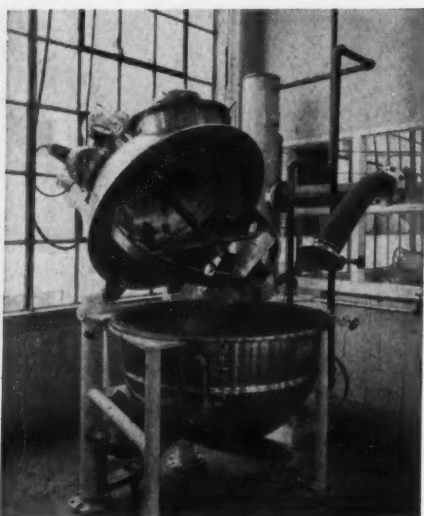
Test it and . . . you always buy it!



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When inquiring check CP 6993 on handy form, pgs. 2-3

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with BUFLOVAK-DOPP
PROCESSING KETTLES**



A hinged cover, supporting the drive and agitator, gives complete accessibility to this BUFLOVAK Stainless Steel Processing Kettle.

- * For the profitable and better processing of many Chemical, Food, Pharmaceutical and Grease Products.
- * Available in many types, materials of construction, and sizes, to meet specific requirements.
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- * The BUFLOVAK Demonstration and Testing Laboratory is equipped to process a small quantity of your material to determine the type equipment and accessories that will give you the most efficient results.
- * Write for complete information.

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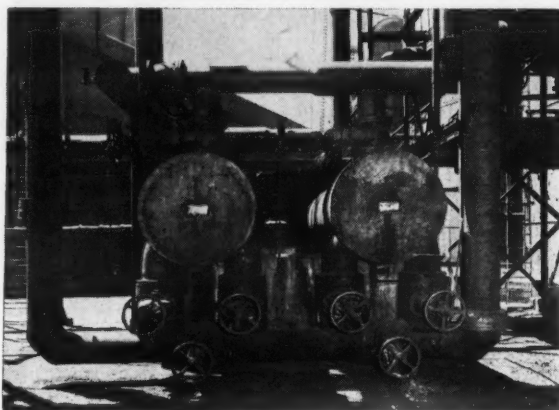
IDEAS

**Heat exchange system cuts
operating costs of sulfur
recovery process . . .**

hydrogen sulfide leaving vacuum carbonate process can be sent directly to contact acid plant

The sulfur shortage has caused much concern in many segments of industry. Manufacturers depending on sulfur, directly or indirectly, are reviewing methods by which the supply can be extended. One such method, recovery of sulfur from coke oven gas, refinery gas or other process gas, shows two advantages: 1) recovered sulfur is suitable for direct sulfuric acid manufacture, and 2) purified sulfur-free gas is often adaptable for new and profitable uses.

One of the more versatile recovery processes is the Koppers vacuum carbonate process. It can be used with coke oven gas, refinery gas, natural gas, water gas or similar industrial gases. The hydrogen-sulfide-rich gas produced in this process can be converted directly to sulfuric acid in a conventional contact acid plant, or can be converted to elemental sulfur by the modified Claus process. Vacuum carbonate plants are in successful operation with each type of conversion unit.



Heat exchangers for recovery of heat from coke oven flushing liquor for generation of stripping steam in actifying columns

The process operates satisfactorily in spite of the presence of various reactive industrial-gas constituents that impair operation of processing depending on sulfur absorption by organic chemicals.

In the vacuum carbonate process, gas is contacted counter-currently with a solution of sodium carbonate in a packed tower absorber. Foul solution from bottom of absorber is stripped of hydrogen sulfide in an actifying tower by counter-current stripping with water vapor under vacuum. Hydrogen sulfide, water vapor, and hydrogen cyanide (if present in process gas) leave top of tower and are passed through a vapor condenser and cooler where most of the water vapor is condensed and removed. The remaining mixture is then drawn through a vacuum pump which maintains the vacuum in the actifying tower and provides sufficient pressure at its discharge to force the gas through the intervening process equipment to the acid plant. A moisture eliminator before the vacuum pump removes entrained moisture.

If hydrogen cyanide is present it is removed in a water absorption tower before the concentrated hydrogen sulfide goes to the acid plant. It can be disposed of in a coke quenching station, or can be recovered as salable

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ON PROCESS
GASES**

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Whenever the specific gravity of a gas is a guide to a chemical reaction or process, Ranarex can be used to indicate, record or control it. Find out now how this accurate, low-cost instrument can help you!

Write to The Permutit Company, Dept. CP 10, 330 West 42nd St., New York 18, N. Y.



RANAREX

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When inquiring check CP 6995 on handy form, pgs. 2-3



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2204 E. Maple Road
Birmingham, Mich.

When inquiring check CP 6996 on handy form, pgs. 2-3

CHEMICAL PROCESSING

When inquiring check CP 6994 on handy form, pgs. 2-3

product. Solution from the bottom of the actifying column is combined with condensate from the vapor condenser, vapor cooler and moisture eliminator, and is pumped back to the top of the absorber through a cooler. Fresh solution is added as required by a separate pump.

Steam requirements are reduced in the process by operating the actifying tower under vacuum. A further improvement permits operation with *no* external steam required for actifying the solution. This development provides for recovery of heat which otherwise would be wasted, and the use of this heat to generate the required stripping vapor from the solution inside the actifying tower. At the reduced pressure inside the tower, the boiling point of the solution is around 140°F. This reduced boiling point permits recovery of heat from sources which are at temperatures too low for ordinary heat utilization.

For example, when treating coke oven gas, the total heat required for the stripping vapor in the actifying tower can be obtained by heat exchange between the carbonate solution and the flushing liquor, or between the solution and the coke oven gas ahead of the primary coolers. Either system takes a large load off the primary coolers — as much as 30% of the total duty — and therefore saves cooling water. Although the temperature of the flushing liquor would be reduced slightly by the heat exchange, the reduction is not enough to cause deposition of pitch in the mains.

It has been found that a coke oven plant with a carbonizing capacity of 5000 tons per day having a sulfur recovery plant using the heat exchange system, will operate at \$342 less per day than an identical plant without the heat exchange system. The total operating cost of production of sulfuric acid, including cost of recovery of sulfur from the gas, has been estimated at \$6.65 per ton of 66° Be acid for this plant, with heat exchange. This cost is exclusive of fixed charges such as depreciation, taxes, insurance and interest, and no credit is taken for the increased value of the purified gas. Costs were calculated on the basis of 90% removal of hydrogen sulfide from the process gas.

(Summarized from 12-page booklet, "Koppers Vacuum Carbonate Process for Sulfur Recovery," published by Koppers Company, Inc., Dept. CP, Koppers Building, Pittsburgh 19, Pa.)

**Diluted, it hardens the teeth,
undiluted, only a special tank
stands its corrosive action . . .**

rigid vinyl plastic used to fabricate 20 gal tank to hold fluoridation acid for reservoir.

Fluoridation of water supply for Avon Lake, Ohio, is facilitated by use of a tank fabricated from rigid plastic. The material, Geon 404, a recently introduced rigid vinyl plastic, was selected.

Capacity of the container, approximately 16" in diameter and about 26" tall, is 20 gal of hydrofluosilicic acid. All nuts, bolts, and studs for the tank are made of Geon. At ordinary temperatures, Geon 404 is unaffected by alkalis, acids, salts, oxidizing agents, oils, greases, alcohols, gasoline, and carbon tetrachloride. Its various characteristics indicate its serviceability in numerous applications where stainless steel or lead equipment is generally specified.

(Geon 404 is a product of B. F. Goodrich Chemical Company, Dept. CP, Rose Building, Cleveland, Ohio.)

A frame size for every capacity up to 4000 GPH or pressures up to 15,000 PSI.



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Whether you're running light liquids or heavy pastes — here's a thrifty, dependable way to give your production a boost. Gaulin High Pressure Pumps move materials faster . . . and lower your unit handling costs.

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When inquiring check CP 6997 on handy form, pgs. 2-3

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Type GS 11 TILTER, with pouring spout . . . \$24.95 complete

SMOOTHER FLOW provided by acid-resistant pouring spout at rates up to 5 gal. per minute.

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When inquiring check CP 6998 on handy form, pgs. 2-3

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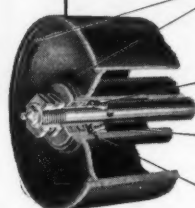
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When inquiring check CP 6999 on handy form, pgs. 2-3

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And, because of standardized design, Link-Belt gives you the famous "100" Idler or the heavy-duty "200" Idler at a cost lower than you'd expect. You can choose from the full Link-Belt line of troughing, impact-cushioning, belt training and flat belt idlers in a wide range of roll diameters and belt widths. A complete line to meet any requirement.

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LINK-BELT COMPANY: Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Springs (South Africa). Offices, Factory Branch Stores and Distributors in Principal Cities. 12,541

When inquiring check CP 7000 on handy form, pgs. 2-3

IDEAS

Isotopic dilution method gives accurate penicillin assay by infrared spectrophotometry . . .

foreseen is extension to hard-to-assay chemicals such as benzene hexachloride and nicotinic acid

Accurate determination of the penicillin G (benzylpenicillin) content of a commercial fermentation broth has long been a difficult problem facing the penicillin manufacturer. Drs. N. R. Trenner and R. Chase of Merck & Co., Inc., Rahway, N. J., have found a solution to this problem through the application of the isotope dilution principle which is practical, precise, and reliable.

A known weight of potassium deuterio-penicillin G is dissolved in a measured volume of filtered fermentation broth, mixed, and a specimen of pure (now isotopically mixed) penicillin G is isolated qualitatively. The deuterio-penicillin G tracer is marked through the replacement of the hydrogen atoms in the phenyl ring with deuterium atoms. In order to obtain the highest precision in the subsequent infrared spectrophotometry, the isolated penicillin G is degraded by alkaline hydrolysis, and the resultant isotopically mixed phenylacetic acids are qualitatively isolated in pure form. The purity is controlled by melting point determination.

The two analogs of phenylacetic acid have different infrared spectra. It is possible to determine their ratio (the isotopic dilution) by the standard methods of infrared spectrophotometry. The infrared analysis is carried out in a standard fixed cell with 0.2 mm spacer, which is filled with a carbon disulfide solution of the isolated phenylacetic acids of fixed weight concentration.

Absorbance is measured at 14.3 microns, a wavelength at which the protio-phenylacetic acid has a strong absorption and at which the deuterio analog has no band. In this way the ratio of protio to deuterio analogs is determined, which together with the weight of tracer and volume of broth allows for a ready computation of the penicillin content of the broth in grams per ml.

This method of assay is economical and practical to run when carried out on a typical control basis. As with all properly carried out isotope dilution methods, its accuracy is equal to its precision which is, moreover, practically constant over the whole range of assay values. Like any reliable assay, this method has proved of considerable value in connection with penicillin process development and control.

Because of its fundamental characteristics, the isotope dilution method has been used in connection with other difficult-to-assay chemicals such as benzene hexachloride and nicotinic acid and its future extension to other such problems seems highly probable.

(Instrument News, Vol. 2, No. 4, The Perkin-Elmer Corporation, Dept. CP, Norwalk, Conn.)

High pressure process splits 5000 pounds of fat per hour at Armour plant . . .

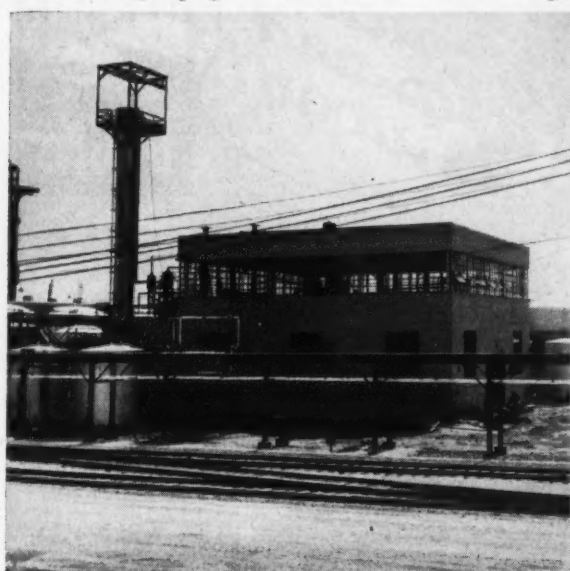
stainless lined tower operates at 700 psig, 250°C; product is 96 to 99% free fatty acids

One of the latest continuous fat splitting towers is at the McCook, Ill., plant of Armour and Company. Mainly, this plant is processing tallows, greases and coconut oil to obtain members of the Armour family of fatty acids and derivatives. The 67' high, 3' ID tower uses about 1800 lb/hr of high pressure steam at a throughput of 5000 lb/hr

CHEMICAL PROCESSING

IDEAS

of fat. Fatty acid content of feed varies from 0 to 35% or more; split product contains 96 to 99% free fatty acids. Tower is operated at approximately 700 psig and 250°C. Water is admitted through sparger two feet from the top, and fat through sparger two feet from the bottom. High



Continuous splitting tower is at left in this photo taken at Armour's McCook plant. Building next to it houses instruments and pumps

pressure steam enters the tower through spargers near top, bottom and center. Top sparger is six feet below water inlet, and bottom sparger five feet above fat inlet, to provide heat exchange zones. Most of the steam is admitted through these two spargers, the center one being used only to balance radiation losses.

Sweetwater from the bottom of the tower contains 9 to 15% glycerol. It is evaporated to 88% crude in two stages in a double effect, long tube, stainless steel Swenson evaporator.

Tower is lined with a 7/64" layer of Type 316 stainless steel, 0.03% maximum carbon. According to Armour, this lining is withstanding corrosion extremely well.

The following typical material balance is included to give the reader a picture of tower performance. Stock is hydrogenated tallow, split is 97%.

MATERIAL BALANCE

In (lb/hr)

Free fatty acid in feed, as oleic acid	110
Neutral fat in feed, as triolein	5280
Process water	3500
Steam	2000
Total	10890

Out (lb/hr)

Free fatty acid in feed	110
Free fatty acid from triolein	4902
Glycerine produced	533
Water in sweetwater	5029
Water in fatty acid	158
Neutral fat in fatty acid	158
Total	10890

(Information courtesy of Chemical Division, Armour and Company, Dept. CP, 1355 W. 31st St., Chicago 9, Ill.)

OCTOBER, 1951

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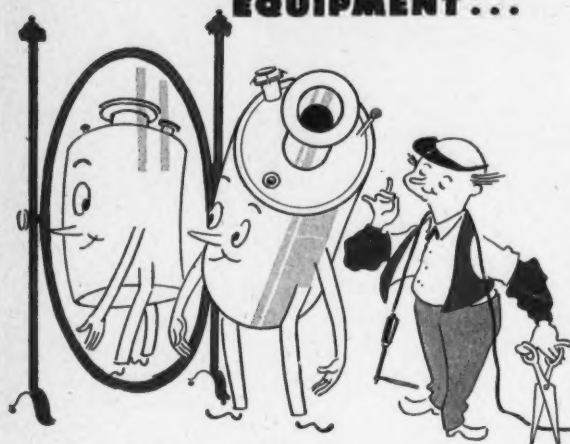
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When inquiring check CP 7001 on handy form, pgs. 2-3

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We work exclusively with stainless steel and alloys. Our plant is specially tooled to fabricate this metal. Our engineers and mechanics are particularly trained for the work. Why not consult us when you plan your next stainless steel vessel?

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CORROSION RESISTANT PROCESSING EQUIPMENT



See our exhibit at the 23rd exposition of Chemical Industries, Grand Central Palace, New York, November 26th to December 1st, 1951.

When inquiring check CP 7002 on handy form, pgs. 2-3

IDEAS

Designed for double exposure, camera records mechanical and electrical changes...

while recording mechanical action through standard lens, camera 'sees' oscilloscope trace at side

In order to record both the mechanical and electrical aspects of certain problems, a camera has been developed which takes a high speed series of pictures of the mechanical happenings while recording continuously the trace of electrical changes on an oscilloscope.

To do this, two lens systems are used. Mechanical changes are photographed through what might be called the normal optical system. A second optical system



Normal optical system photographing mechanical changes while lens at right catches changes in electrical circuits as shown by oscilloscope at far right

projects from the side of the camera. By focusing this second system on an oscilloscope, the trace is directed to the back of the same film being exposed to mechanical happenings.

No sweep is used on the oscilloscope since the film itself provides a continuous vertical sweep. In order to compensate for the lack of a time base with this system, an edge-marking argon lamp is built into the camera. In use, then, the electrical signal is fed to the horizontal deflecting circuit.

The trace may be placed in any position within the width of the picture field. Developed film shows the continuous trace correctly in phase with the frames showing mechanical changes. This means that on any given frame the midpoint from top to bottom of the trace on the frame coincides with the midpoint of the exposure time for the frame.

Time between frames (equal to five times the exposure time) is indicated by the marking lamp, and the film during the interval continues to show the electrical changes that occur.

While obviously able to analyze performance of electro-mechanical devices, the camera can be easily adapted to many purely mechanical devices. By using electrical sensing elements on the mechanical part, strain, acceleration, vibration and similar quantities may be recorded through the oscillograph trace.

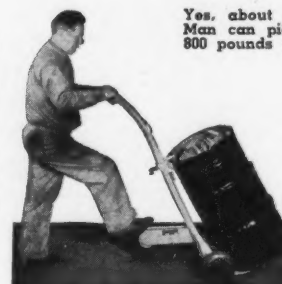
(This modified Kodak High Speed Camera is a development of Eastman Kodak Company, Dept. CP, Rochester 4, N. Y.)

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Write for Bulletin on full line of Sabin Barrel and Drum Trucks.

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When inquiring check CP 7003 on handy form, pgs. 2-3

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Conveys bags, cartons, boxes horizontally or at any decline and incline angle within its range. Easily wheeled about by one man — easy to adjust and use — fits in crowded aisles, cars and freight elevators. Handles packages up to 135 lbs. TWO SIZES: No. 11 Handibelt, 11 ft. long, piles to 7 ft. 6 in; No. 16, 15 ft. 9 in. long, piles to 10 ft. 6 in. Write for HANDIBELT Bulletin — address Dept. CP-101.

STANDARD CONVEYOR COMPANY
General Offices: North St. Paul 9, Minn.
Sales and Service in Principal Cities

When inquiring check CP 7004 on handy form, pgs. 2-3

CHEMICAL PROCESSING

IDEAS

13-pound plastic articles being injection-molded . . .

pre-plasticizing injection press
answer to larger plastic items

Complete refrigerator interiors, kitchen cabinets, and new type fluorescent lighting fixtures molded in one piece from plastics may some day be rolling off production lines. . . according to officials of the General Electric chemical department. Prediction is based on recent developments in injection molding presses.

In anticipation of coming trend for larger plastic parts made from thermosetting plastics, GE has installed a pre-plasticizing injection press made by Jackson & Church Co., Saginaw, Mich., at their Decatur, Ill., molding plant. It is designed to produce plastic articles weighing up to 13 lb, and can be easily converted to produce larger items. Large refrigerator components are now in production.

Press weighs 135 tons and stands 27' high. Pressure being applied in the molds can be controlled to attain desired product quality, and design flexibility. Pre-plasticizing equipment allows coloring and molding of certain plastics in single operation.

(Summary of information received from General Electric Company, Dept. CP, Pittsfield, Mass.)

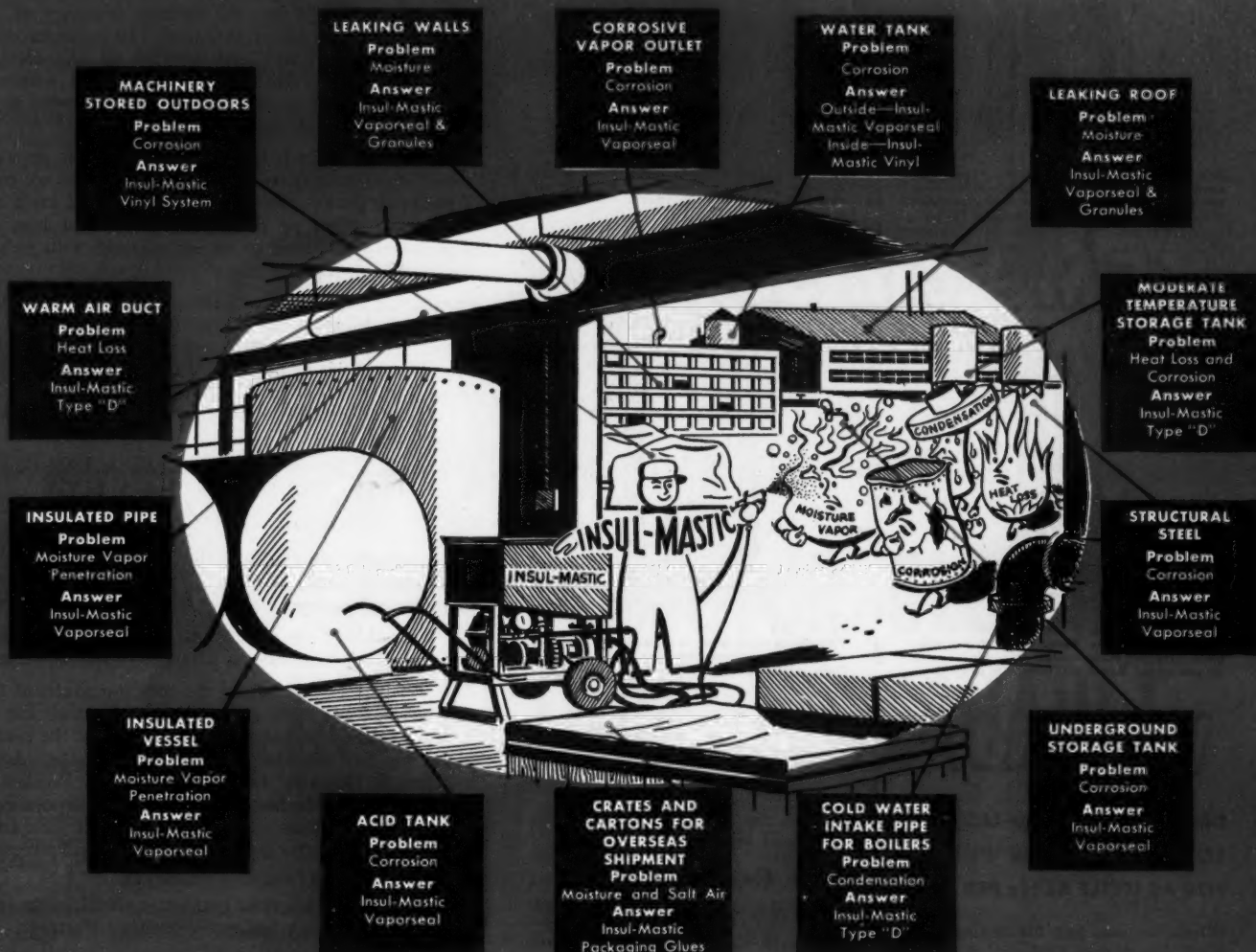
Light for plant safety and security

Complete plans for outdoor industrial lighting are provided in this 24-page booklet. Four principles are set forth in stressing that protective lighting is good productive lighting: (1) discourage attempts at entry; (2) make detection certain if entry is attempted; (3) aid the guard and hinder the intruder; and (4) provide complete reliability.

Application suggestions and techniques are given, such as the lighting of fence boundaries, building-face boundaries, water front boundaries and industrial thoroughfares. Various power distribution and control systems and mounting methods are provided. Booklet B-4791 is issued by Westinghouse Electric Corp., Dept. CP, Box 2099, Pittsburgh 30, Pa. When inquiring specify CP 7005 on handy form, pages 2 & 3.

For more information on product at right, specify CP 7006 . . . see information request blank between pages 2-3.

WHERE WILL THEY ATTACK IN YOUR PLANT?



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COATINGS OF UNEQUALED QUALITY

You can't select a heavy coating of better quality than Insul-Mastic. Its ingredients were specially chosen for their stubborn resistance to acids, alkalis, weather and wear. Insul-Mastic is homogenized for smooth spraying without blobs or pinholes. Write today for our catalog.

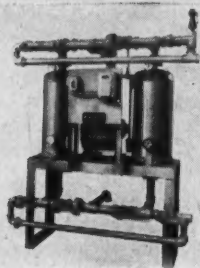
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coatings that last!*

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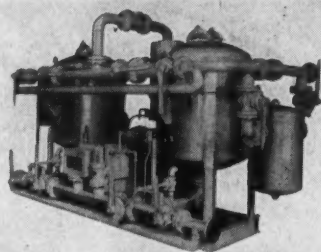
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This Kemp Radiation-Cooled Dryer gives maximum efficiency with minimum maintenance and operating costs. Heating period terminates automatically. Rated: 300 scfm, 100 psig, 70° F.

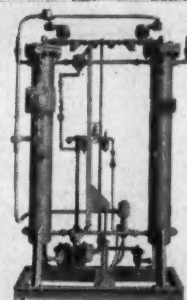


This electrically activated Kemp Dryer is designed so gas stream is not contaminated by air normally used for reactivation. Rated: 3200 scfm, 100 psig, 70° F.

KEMP can Solve...



This Semi-automatic Kemp Oriad Dryer dries air for actuating tools, valves, etc.—dries process air and gases. Rated: 600 scfm, 100 psig, 70° F.



This Kemp Oriad Dryer is controlled by program timer. All operations, including tower reversals, fully automatic. Rated: 100 scfm, 100 psig, 70° F.

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**DRIES AIR, GASES or LIQUIDS
TO NEW LOW DEW POINTS
FOR AS LITTLE AS ¼¢ PER MCF**

Whatever you pay for drying air, gases or liquids, check on the economy of Kemp Dynamic Dryers! Hundreds of Kemp Dynamic Dryers control moisture at low cost in plants all over the country. Operation is guaranteed to your specifications. In fact, many Kemp users report drying to sub-zero dew points for as little as ¼¢ per mcf—including all

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Kemp Dynamic Dryers are versatile — offer manual, semi-automatic or automatic operation. Desiccant is especially selected and compounded for the type drying you require. With Kemp you can dry air, gases or liquids, eliminate moisture in materials, and control humidity in large or small areas. Gas, electric or steam regeneration is supplied as standard equipment.

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Write For Bulletin D-27 for technical information. Address: C. M. KEMP MFG. CO.,
405 E. Oliver St., Baltimore 2, Md.

When inquiring check CP 7007 on handy form, pgs. 2-3

IDEAS

Reflooring coke oven can be done in hours...

fast method returns oven to work immediately after repair work is completed

Repairs to coke oven floors have been speeded considerably by a process which uses the leveling tendency of liquids and the retained heat of the oven. In order to resurface the oven floor, all slag and particles of coke are cleaned out. Then R & I No. 3000 Super, mixed with enough water to make a thin slurry, is fed into the oven in chutes which enter through the open doors.

By pouring over each half of the oven floor through the nearest door, the mortar can be brought to the normal level of the brick floor. The leveling takes care of itself because of the consistency of the mortar. Residual heat of the oven causes the cement to set immediately, with good abrasion-resistant properties.

By running the pusher ram through the oven a number of times, any blisters formed in the operation can be removed. Before loading the new floor for the first time, a layer of two-inch wooden planks are put down to provide charcoal for lubrication of the load. As soon as the planks are on the floor, the doors can be closed, luted, and the oven loaded.

(Information furnished by Refractory & Insulation Corp., Dept. CP, 120 Wall St., New York 5, N.Y.)

Why, where, and when mechanical seals for centrifugal pumps...

seem likely to replace packing; 850°F foreseen as operating temp due to advances in synthetics and seals

Restricting leakage around the rotating shafts of centrifugal pumps has been a major consideration for design engineers and chemical operators ever since the centrifugal pump was first introduced into process service. According to Dan R. Rankin, Chief Engineer of Peerless Pump Division, Food Machinery & Chemical Corporation, it is highly probable that mechanical seals will completely replace packing on the majority of centrifugal pumps in the ultimate future.

Mechanical seals are now performing well in many operations where packing has never been satisfactory:

- 1) Pumps handling light fractions in refineries that often were subject to frosting of the stuffing box area from evaporative cooling of leaking liquids now operate smoothly with no appreciable loss of the light material handled.
- 2) Units pumping slurries which wore out packing in a week now run for months before requiring replacement of seal faces.
- 3) Processes where extremely high suction pressures once required throttle bushings and bleed-back lines, representing appreciable loss of product back to the low pressure containers, are now making advantageous use of mechanical seals.

All mechanical seals have resilient components made from a variety of synthetic materials with unique properties as required for the service. For operating temperatures approaching 250°F, such materials as Neoprene and Hycar perform effectively as seals. For temperatures approaching 450°F, materials such as Teflon and Kel-F are required. Although there is no material at present that will withstand temperatures in excess of 450°F, future developments in synthetics or elimination of resilient materials in seal de-



High pressure accumulator and absorber tower shown with other plant structures.

PROFITABLE RECOVERY with HORTON TOWERS

At Warren Petroleum Corporation's gasoline plant near Holliday, Texas, propane recovery has jumped from 65 per cent to 85 per cent as the result of newly-installed equipment.

Among the new units at Holliday are an absorber tower, high pressure accumulator, and high pressure residue scrubber built by Chicago Bridge and Iron Company. Each structure was fabricated and erected to exacting specifications.

Get similar production benefits for your plant by installing modern refinery equipment.

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Washington 6, D. C.	1158 Caffritz Bldg.

When inquiring check CP 7008 on handy form, pgs. 2-3

CHEMICAL PROCESSING

signs may permit operating temperatures of 800 or 850°F within the foreseeable future.

Mechanical seals take on two forms: unbalanced and balanced. Unbalanced form is less expensive, is usually not made in cartridge form, and has a specific upper-level pressure rating. When unbalanced seals are used at pressures in excess of 75 psi differential across the seal, the life of the seal is appreciably reduced and normally should not be used at pressures above 125 psi even for intermittent operation since the faces may gall, particularly with poor lubricating fluids.

A balanced seal is so designed that the pressure between the wearing faces of the seal remains essentially constant over a wide range of pressures. With properly balanced seals it is theoretically possible to attain any pressure and maintain good life. Standard balanced seals can be used for pressures from 400 to 600 psi without special consideration.

For pressures in excess of this, it is important to have the seal balanced for the pressure range involved. With light hydrocarbons where relatively high suction pressures exist and on applications where poor lubrication quality exists in the fluid being pumped, it is desirable to use balanced seals.

As mechanical seals prove themselves in various applications, more pumps are being designed specifically for use with them. A pump designed specifically for use with a mechanical seal is less expensive than a pump designed for packing with a seal added later.

(Peerless Pump Division, Food Machinery & Chemical Corporation, Dept. CP, 301 West Avenue Twenty-six, Los Angeles 31, Calif. . . . or for more information check CP 7009 on handy form, pages 2 and 3.)

Magnesium content of cast iron found by NBS-developed chemical procedure . . .

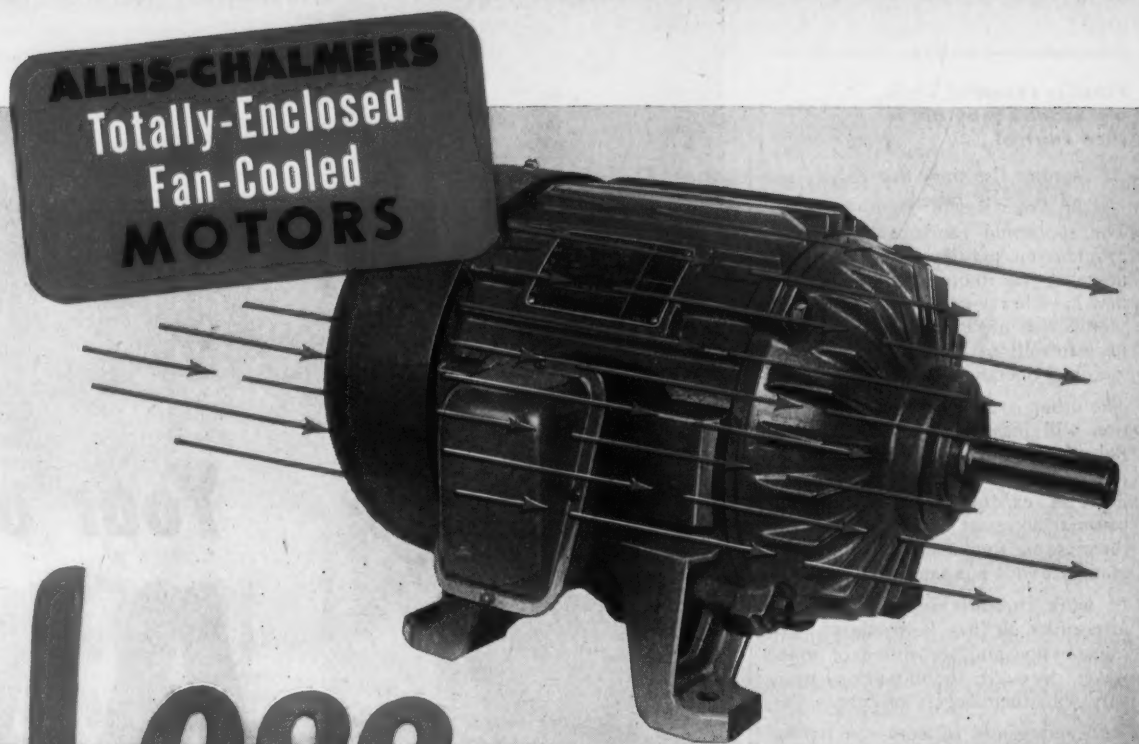
method said to be accurate to 0.002% Mg in samples containing 0.01 to 0.10% Mg

The National Bureau of Standards has worked out a chemical method for determining the magnesium content of cast iron. Although slower than spectrographic methods, it should prove useful in checking spectrographic standards and in those laboratories that do not have spectrochemical equipment. Results of testing indicate that the method is accurate to around 0.002% Mg in samples containing 0.01 to 0.10% Mg, that it is applicable to most plain or low-alloy irons, and that moderate amounts of calcium and cerium do not interfere.

Small amounts of magnesium are added to cast iron to impart ductility. Some of the magnesium is lost during production of the iron.

In the determination, the cast iron sample is dissolved in hydrochloric acid and the iron removed, after oxidation, as the chloride by ether extraction in a continuous extractor. Magnesium, together with some manganese, is then precipitated as phosphate from an ammoniacal citrate solution. After dissolving this phosphate precipitate in diluted acid, manganese is removed, as manganese dioxide, by precipitation with ammonium persulfate. Magnesium is then precipitated as the phosphate, ignited, and weighed as $Mg_2P_2O_7$. Finally, the weighed pyrophosphate precipitate is examined for calcium by the sulfate-ethanol procedure, and any necessary weight correction is made.

(National Bureau of Standards, U. S. Department of Commerce, Washington 25, D. C.)



LESS MOTOR CLEANING ... INSPECTION ... OVERHAUL!

HERE'S A MOTOR that actually blows itself clean! Dirt is carried away by cooling air blown over the ribbed cast iron frame and bearing housings of this new Allis-Chalmers tefc motor.

Dirt can't build up to cause overheating. Concealed air passages and pockets have been eliminated. Even oily dirt that sticks can simply be wiped or blown off.

And this means savings! Maintenance costs are traditionally low on totally-enclosed, fan-cooled motors. But they're lower than ever before on the new Allis-Chalmers Type APZ tefc motor.

Rigid Construction

The frame is cast iron which has high

resistance against corrosion and distortion. Bearings are pre-lubricated at the factory and should need no attention for years. Tapped holes with pipe plugs to permit regreasing and to provide grease relief are standard equipment.

Get All The Facts

The new Allis-Chalmers Type APZ totally-enclosed, fan-cooled motor is built in all NEMA standard frame sizes from 224* to 505. Also in explosion-proof type. Your A-C Authorized Distributor or District Office has complete information. Call today, or write Allis-Chalmers, Milwaukee 1, Wisconsin. Ask for Bulletin 51B7225.

A-3426

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PUMPS — Integral motor and coupled types from 3/4 in. to 72 in. discharge and up.

*Similar design non-ventilated motors Type APK, also available in frames 203 to 224 inclusive.

When inquiring check CP 7010 on handy form, pgs. 2-3

Plastics research finds ultrasonics may aid in cure control . . .

studies also show that polystyrene strength is raised

The sponsored fundamental research program on plastics at MIT has announced two interesting findings that may have heavy impact upon the field. One is that ultrasonics shows promise in controlling cure in commercial molding operations.

The other is that molecular reorientation will increase tensile strength of polystyrene three-fold. Principal objective of the MIT program is to fill gaps in existing data and provide material necessary for development of theories on fundamental behavior of plastics under mechanical stress.

In work currently in progress using ultrasonics, it has been shown that transmission and absorption of sound waves through thermosetting resins vary with their degree of cure.

Rate and extent of cure can be followed by measuring the changes in velocity and intensity of sound waves passing through a plastic while it is curing. These changes may be plotted graphically and correlated with other physical properties such as hardness, flexural strength, etc.

This development should prove useful in detailed studies of changes taking place during curing of thermosetting resins — as a function of temperature, type of catalyst, catalyst concentration and type of resin. Of course, it opens the door to a fast, reliable method of controlling cure in commercial molding applications.

Research on polystyrene has revealed that the characteristics of the material can be altered considerably by stretching the polystyrene while it is hot enough to be plastic. After cooling, the stretched pieces have ultimate strength, in the direction of stretch orientation, approximately three times that of unstretched pieces.

Highly stretched samples showed no tendency to craze (develop little cracks) before rupture. Under loads sufficient to produce ultimate fracture, the oriented polystyrene exhibited higher ductility and behaved like steel or copper.

Before rupture, the specimen necked down, and the fracture was fibrous, like the ends of a thread which have been pulled apart. No development of crystalline areas, as in metals, occurred in the stretched polystyrene.

This new knowledge concerning the behavior of polystyrene is already be-



Your own test proves

AMPCO*

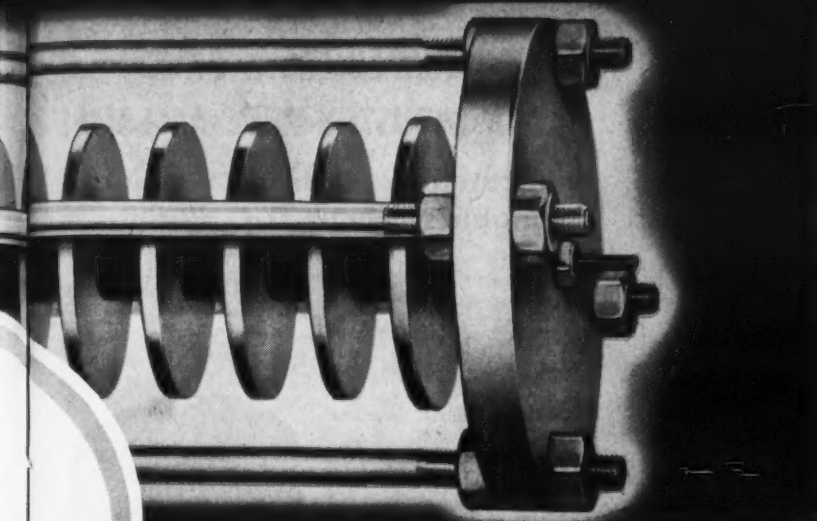
ALUMINUM BRONZES

Typical Applications in which Ampco Alloys have been used with Cost-Saving Success!

Absorption columns	Condenser tubes	Fittings — forged, cast	Perforated plate	Suds
Acetylators	Condenser tube sheets	Forgings	Pickling baskets	Sucker rod
Acid chain	Control valves	Fractionating columns	Pipe and fittings	Tanks
Agitators	Conveyors	Hangers	Plug cocks	Tools, safety
Autoclaves	Coolers	Heat exchangers	Pressure vessels	Towers
Baskets	Crystallizers	Heater coils	Pumps	Trays, fractionating
Bearings	Deplegmaters	Hooks	Reboilers	Tubes and tubing
Beater bars	Digesters	Injectors	Retorts	Valves
Bellows	Ejectors	Instrument cases and elements	Rivets	Valves
Bolts and nuts	Evaporators	Kettles	Safety tools	Welding rod
Brazing rod	Evaporator tubes	Line hardware	Screens	Well tubing
Brine coils	Extractions	Meter cases	Screws, conveyor	Wire
Bubble caps and trays	Fabricated assemblies	Mixers	Sludge burners	Woven wire cloth
Calandrias	Filters and filter screens	Pans, evaporator	Springs	
Condenser shells	Filter presses		Still	

Chemical Agents and the Applicability of AMPCO Alloys

Acetate Solvents (Pure)	E	Carbon Dioxide	E	Hydrogen Sulfide	NR	Potash Crudes	E	Toluene or Toluol	E
Crude	G	Dry	NR	Wet	F	Propane	E	Tri Chlorethylene	E
Acetic Acid	E	Carbon Disulfide	NR	Lacquers and Lacquer	E	Shellac	E	Tri Sodium Phosphate	E
Crude	E	Carbon Tetrachloride	NR	Solvents	E	Soaps	E	Turpentine	E
Vapors	E	Caulic Soda	NR	Lactic Acid	E	Soda Ash	G	Varnish	E
Acetic Anhydride	E	Chlorine	NR	Magnesium Chloride	E	(Sodium Carbonate)	E	Vegetable Oils	E
Acetone	NR	Dry	G	Magnesium Hydroxide	E	Sodium Bicarbonate	E	Water	E
Acetylene	NR	Wet	NR	Magnesium Sulfate	E	Sodium Bisulfate	E	Fresh	E
Alcohols	E	Chloroform	NR	Malt Beverages	NR	Sodium Carbonate	E	Salt (includes	E
Aluminum Fluoride	G	Chromic Acid	NR	Mercuric Chloride	E	Sodium Chloride	NR	Polluted Harbor)	E
Aluminum Sulfate	E	Citric Acid	NR	Mine Water (Sulfate)	E	Sodium Cyanide	E	Xylene	E
Ammonium Hydroxide	E	Copper Sulfate	NR	Molasses	E	Sodium Hydroxide	E	Zinc Chloride	E
Ammonia Gas	G	Crude Oils — Sour	E	Monochlorobenzene	E	Sodium Nitrate	E	Zinc Sulfate	E
Dry	NR	Esters	E	Muriatic — Cold,	E	Sodium Peroxide	F		
Ammonium Chloride	NR	Ethers	E	Commercial	C	Sodium Phosphate	E	These ratings may usually	
Ammonium Hydroxide	NR	Ethylene Glycol	E	Naphtha	C	Alkaline	E	be interpreted as follows:	
Ammonium Nitrate	F	Ethyl Sulfate	NR	Natural Gas	C	Neutral	E	E — Excellent	
Ammonium Phosphate	E	Ferric Chloride	NR	Nickel Chloride	C	Acid	E	IPY Penetration	
Ammonium Sulfate	E	Formaldehyde	NR	Nickel Sulfate	NR	Sodium Silicate	E	< 0.006"	
Anhydrous Chloride	E	Formic Acid	E	Nitric Acid	NR	Sodium Sulfate	E	G — Good	
Asphalt	E	Freon	E	Nitrogen (Dry)	E	(Soda Cakes)	E	IPY Penetration	
Barium Chloride	E	Furfural	E	Oleic Acid	E	Sodium Sulfide	NR	< 0.016"	
Beer	E	Gasoline	E	Oxygen	E	Sulfur	NR	F — Fair	
Beet Sugar Liquors	E	Gelatin	E	Paint Vehicles	E	Sulfur Chloride	NR	IPY Penetration	
Benzene or Benzol	E	Glucose	E	(Except Soya-Oil)	E	Sulfur Dioxide	C	< 0.050"	
Borax	E	Glycerine	E	Palmic Acid	C	Dry	C	NR — Not Recommended	
Boric Acid	E	Hydrocarbon Gases	E	Petroleum Oils	G	Sulfuric Acid	E	IPY Penetration	
Brine	E	to 5%	E	Refined	G	5%	E	Over 0.050"	
Butane, Butylene	E	to 10%	C	Phenol	E	10%	E	In using this data, it should	
Butadiene	E	(see Muriatic)	F	Phosphoric Acid	E	25%	E	be understood that these are	
Butyric Acid	E	Hydrocyanic Acid	NR	Pickling Acid	E	Up to Boiling	E	results of specific tests and	
Calcium Bisulfite	C	Hydrofluoric Acid	NR	(except Nitric Chromic)	E	50%	E	are indicative of those condi-	
Calcium Hydroxide	C	Hydrogen Fluoride (Dry)	E	Potassium Chloride	NR	Sulfuric Acid Sludge	E	tions under which the tests	
Calcium Hypochlorite	F	Hydrogen	E	Potassium Cyanide	NR	Sulfurous Acid	C	were run, and are a basis	
Cane Sugar Liquors	E	Hydrogen Peroxide	F	Potassium Hydroxide	F	Tannic Acid	C	for recommendation, but not	
Carbolic Acid	E			Potassium Sulfate	E	Tartaric Acid	E	for guarantee.	



are a Practical Remedy for Your Corrosion Ailments

The success of Ampco aluminum bronzes in solving many different corrosion problems for a wide variety of applications is quickly evident from a glance at the tables on the opposite page.

But you may have a special problem of your own. You may want to make your own tests — prove to yourself that Ampco aluminum bronzes offer a money-saving solution.

Here's all you have to do: We have a complete stock of test specimens of different materials which can be mounted on racks. Several forms of racks are available for tests in atmospheric locations, pipe lines, tanks or other pressure vessels. Just write and ask for test specimens, but be sure to outline the conditions under which the test is to be conducted so that we can supply the most suitable form.

Here's another service that can help you. Sometimes repeated 60- to 90-day exposures are required. Our own technicians will work with you through the testing period, pilot plant and preplant operations. Write today.

**Tear out this coupon
and mail today!**

*Reg. U. S. Pat. Off.

Ampco Metal, Inc.
Milwaukee 46, Wisconsin

West Coast Plant,
Burbank, California



AMPco METAL, INC., Dept. CP-10, Milwaukee 46, Wisconsin

Send me information on the application of Ampco Aluminum Bronzes for corrosion-resistant service in the Process Industries.

Name..... Title.....

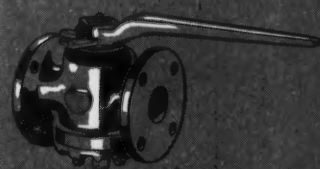
Company.....

Company Address.....

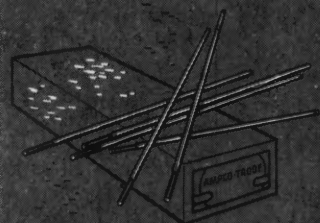
City..... (....) State.....



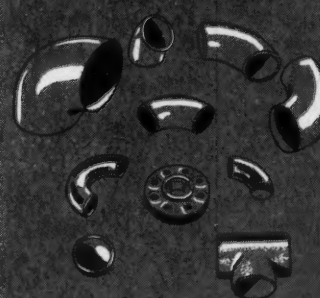
Fabricating Ampco Metal with Inert Gas
Consumable Electrode Welding.



Ampco Plug Valves



Ampco Bronze Electrodes



Ampco Pipe Fittings

IDEAS

ing applied in production of sheets of flexible polystyrene. Possibility of a polystyrene fiber for certain special-use fabrics is indicated.

(Sponsors of the program are all members of the Manufacturing Chemists' Association, Inc., Dept. CP, 330 W. 42nd St., New York 18, N. Y.)

First Orthoflow fluid cat cracker goes on stream in Canada . . .

single-vessel unit has straight carrier lines

The world's first Orthoflow fluid catalytic cracker was recently put on stream at Edmonton, Canada, for British American Oil Company, Ltd. Although this unit has a relatively small throughput—about 2000 bpd—its designers feel that crackers for 60,000 bpd are practical.

Interesting features of the Orthoflow are several. A single vessel contains chambers for reaction, regeneration and stripping. Catalyst carrier lines within the vessel are straight and thus less subject to erosion by the catalyst than are bent lines. Expansion of the

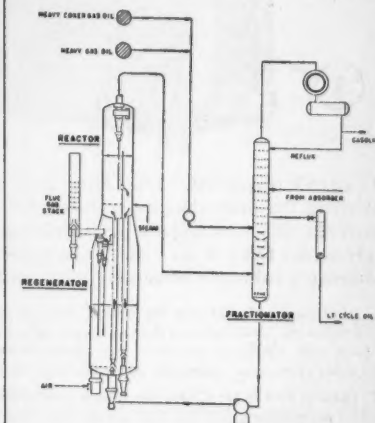


Diagram of Orthoflow fluid catalyst
cracker

carrier lines is absorbed not by expansion joints but by spring-loading the control valves for oil and catalyst flow. The valves are not the conventional slide type. They are essentially large needle valves through which catalyst and oil are introduced to the carrier line leading to reactor. Hot catalyst from bottom of regenerator is drawn into line by pressure drop created by high-velocity oil passing thru valve.

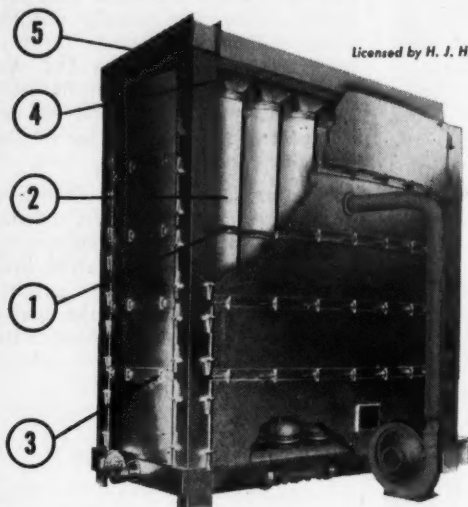
(Designed by The M. W. Kellogg Company, Dept. CP, 225 Broadway, New York 7, N. Y.)

For more information on product at left, specify CP 7011 . . . see information request blank between pages 2-3.

ABSOLUTE RECOVERY OF FINEST DUST PARTICLES

DAY TYPE "AC" DUST FILTER

- ★ 99.998% COLLECTION EFFICIENCY
- ★ NO CLEANING SHUTDOWNS
- ★ HIGH AIR TO CLOTH RATIOS
- ★ SPECIAL FELT FILTER CLOTH



Licensed by H. J. Horsey, Jr.

The DAY Type "AC" Dust Filter provides more efficient filtering for many chemical dusts. Here are several reasons for this outstanding performance, and why you can rely on the DAY Type "AC" Dust Filter to meet your dust filtering problems more efficiently and economically:

1. Continuous-Automatic Operation: reverse jet rings travel slowly up and down the tubes cleaning them continuously with a maximum cloth area loss of only 1 3/4% at any time. This eliminates cleaning shutdowns and provides continuous, automatic operation with constant air volume.

2. Special Felt Filter Cloth: the gentle, yet positive reverse jet cleaning action permits the use of this high grade wool filtering fabric which collects even the finest dust particles. (Actual tests have shown up to 99.998% collection efficiencies.) Also, the use of this type of cloth allows higher air-to-cloth ratios of 10, 15 or even 20 to 1 with uniform back pressures.

3. Outstanding Adaptability: units can be furnished in multiples of 4 tubes; sectionalized steel panel housings (see illustration) for filters requiring vacuum or outdoor installations; quick opening clamps simplify erection and permit removal of sections for easy access to filter. (The DAY Type "AC" Dust Filter can be supplied without housing where housing is not essential.)

4. No Dust Catching Ledges: DAY Type "AC" Filters with a pattern of square-to-round inlet fittings, have no flat surfaces where dust can accumulate and become contaminated.

5. Separated Dust Streams: one DAY Type "AC" Dust Filter can handle as many as four different product streams simultaneously, without mixing.

WRITE-TO-DAY FOR BULLETIN 491

Visit our exhibit at the 23rd Chemical Industries Exposition,
Nov. 26 to Dec. 1, 1951, Grand Central Palace, New York.



The DAY Company

852 3rd Ave. N.E., Minneapolis 13, Minn.
IN CANADA: P. O. Box 70, Ft. William, Ontario
Branch Plants in Ft. Worth, Buffalo and Welland, Ontario

IDEAS

(Continued from page 4)

have increased in number and applications while at the same time growing more rugged and easier to operate. Like "guided missiles" they seem to operate if one simply shows them the target.

Reactions instigated or helped by the presence of a catalyst have increased materially in importance recently. Catalysts in more advantageous forms as well as catalysts of new composition will be shown and explained. Results of catalytic work in the form of new products or familiar ones made by a new method will be shown by practically all of those with product exhibits. Add to these the products made in more conventional ways and one has a list of new chemicals which is very impressive. As the representative of one of our great chemical processors recently said, "Fifty percent of our business consists of products we were not making five years ago." These new products are to be found in all the major fields served by the chemical processor: new surface coatings, new protective coatings, new plastic materials with wide diversification in their applications, new metals and their alloys, new pharmaceutical products, new insecticides and fungicides, new textile fibers, new rubbers.

It can also be said about all these products: they penetrate a new field of use or, because of more desirable characteristics, they expand a new field.

One ventures to say that the observant visitor, who is engaged in chemical processing, can discover a better way to carry out at least one processing operation and see at least one new product which he might make with profit. Maybe if he has both eyes open he can see more than that.

Salutations to the Chemical Processor and his copartners — the instrument and equipment manufacturers. Their united resourcefulness has made their industry "the most stable as well as the most rapidly expanding industry in the USA" . . . one might say "the world" and still be correct. I believe that a continuance of this united effort will keep the industry in this enviable position.

To tailor monoesters from customer's oils, fats . . .

process to make full use of glycerin during esterification — no loss in free form, diesters, triesters

An invitation to oil and fat producers is extended by Distillation Products Industries, division of Eastman Kodak Company, to discuss the possibilities for producing special monoesters (fats that contain 2 reactive hydroxyl groups) for particular needs. Company is prepared to esterify customer-produced fats or fatty acids (lauric, myristic, palmitic, oleic, ricinoleic, stearic, 12-hydroxystearic, etc.) with glycerin, and then distill the desired monoester from the reaction mixture — tailored to fit specifications and in purity up to 90%.

DPI reports that the required monoester molecule can be obtained with a substantial saving in amount of glycerine employed. This is because the process (high vacuum distillation) directs all the glycerin into the monoester instead of wasting it.

An example of what can be accomplished is a molecule that is highly reactive and hydrophilic at one end, and hydrophobic with a certain desired stability or reactivity at the other end. Producing on a tonnage basis, such a molecule clings to water instead of repelling it.

(Summary of information received from Eastman Kodak Company, Dept. CP, Rochester 4, N. Y.)

PLASTIC DRUM-LINERS & BAGS WIN INDUSTRY-WIDE ACCLAIM!

**Fabricated by electronic welding.
Available without D-O Ratings.**

USES: Now being used by many chemical processing and packaging concerns for various types of drum liners and bags.

FEATURES: Unusual strength and flexibility.

TYPES: "C-R-C" for all chemical and industrial uses. "VISTEN" for foods, drugs and other products requiring non-toxic packaging.

DESCRIPTION: Drum liners and bags of these plastic films are electronically welded and tested, and are being manufactured in various sizes and shapes for practically every kind of steel or fibre drum, carton or case, and every type of bag.

DELIVERIES: Immediate to 10 days.

SOURCE: . . .



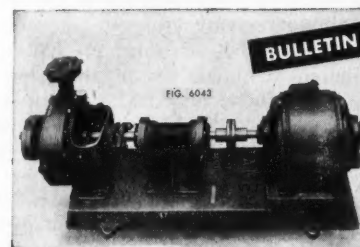
PROTECTIVE LINING CORPORATION

22 East 17th Street, New York 3, N.Y., Dept. C
Telephone: CHelsea 3-8131

When inquiring check CP 7013 on handy form, pgs. 2-3

TABER for Higher PRACTICAL Performance

PUMP for EVAPORATOR SERVICE



BULLETIN CL-339 AVAILABLE

Especially applicable to Evaporator or Vacuum service, and any apparatus from which liquids are to be

removed under vacuum. • Large chamber completely surrounds the stuffing box and seals perfectly against vacuum. • The water chamber surrounding the stuffing box can also be used as a drip chamber when pumping fluids from atmospheric pressure. • Sealed, double ball bearing shaft support is another feature of this Taber single suction centrifugal pump. • Built of any obtainable metal or alloy found suitable by customer. • Please use business stationery when writing for Bulletin CL-339.

TABER PUMP CO. (Est. 1859) 320 Elm St., Buffalo 3, N.Y.

TABER PUMPS

When inquiring check CP 7014 on handy form, pgs. 2-3

CHEMICAL PROCESSING

When inquiring check CP 7012 on handy form, pgs. 2-3

IDEAS

Thermometer marking using silicone resin stands up longer . . .

formulation withstands cleansing with soap and phenol solutions

A durable, lasting compound has been developed by NBS for marking clinical thermometers involving use of a silicone resin. Previously, constant immersion in detergents, soap solutions and germicides led to a loss of pigment and consequent thermometer failure. Silicone formula was developed and immersion tests showed its applicability.

In formulation, to 15 parts by weight of the resin are added 5 parts of bone black, 1 part of normal butyl alcohol, and 1 part of toluene. The mixture is ground in a ball or pebble mill, this disperses the bone black in the resin and results in a soft consistency.

Xylene may be substituted wholly or partly for toluene if a longer drying time is desired. The bone black settles partially on standing for one to three days but is easily redistributed by stirring.

Application of pigment to the thermometer involves use of a small round brush with short bristles. After drying in the open air at a temperature above 70° F, the thermometers may be immersed in a water bath to test their accuracy; and at the end of two weeks they may be exposed to disinfectants.

Simulated service tests at the NBS showed those thermometers marked with the NBS formulation withstanding more than 7 months of continuous or intermittent exposure to a large number of disinfectants, soap solutions, detergents, and other chemicals.

In connection with this work, two accelerated service tests were developed which hospitals or other groups can use to determine the durability of the markings on thermometers purchased.

One involves a 14-day exposure to a solution of tincture of green soap of a specified concentration. Thermometers are removed eight times for washing and drying. In the other test, thermometers are kept in a water solution of phenol for 14 days except for 24 brief removal periods, during which they are rinsed and dried.

(Information received from National Bureau of Standards, U.S. Department of Commerce, Washington 25, D.C.)

For more information on product advertised at right, specify CP 7015 . . . see information request blank between pages 2-3.



Wiggins Gasholder does 7 years' work in 11 months!

Pilot gasholder stores coke oven gas for nationally known steel maker. Dry seal proves thoroughly effective!

March 13, 1950, a pilot plant test was begun to determine suitability of the Wiggins neoprene dry seal in storing debenzolized coke oven gas. Automatic controls were installed which filled and emptied the gasholder every hour. This was the operation over the first several months. During the remaining period, this cycle was alternately speeded up and slowed down. On February 13, 1951, this Wiggins Gasholder test was completed—after 11 months and 2,650 cycles—roughly equivalent to 7 full years of operation at one cycle per day!

During the entire test period coke oven gas was in continuous direct contact with the seal fabric. Temperatures in the gas space ranged from over 100° F. to below 0° F. During much of the test, inside surface of seal was wet with condensate. All these combined to give as severe a test as anything that could be expected.

THESE WERE THE RESULTS:

Air side of dry seal in original condition.

Neoprene coating on gas side flexible and resilient—unaffected by chemical action. No hardening or cracking.

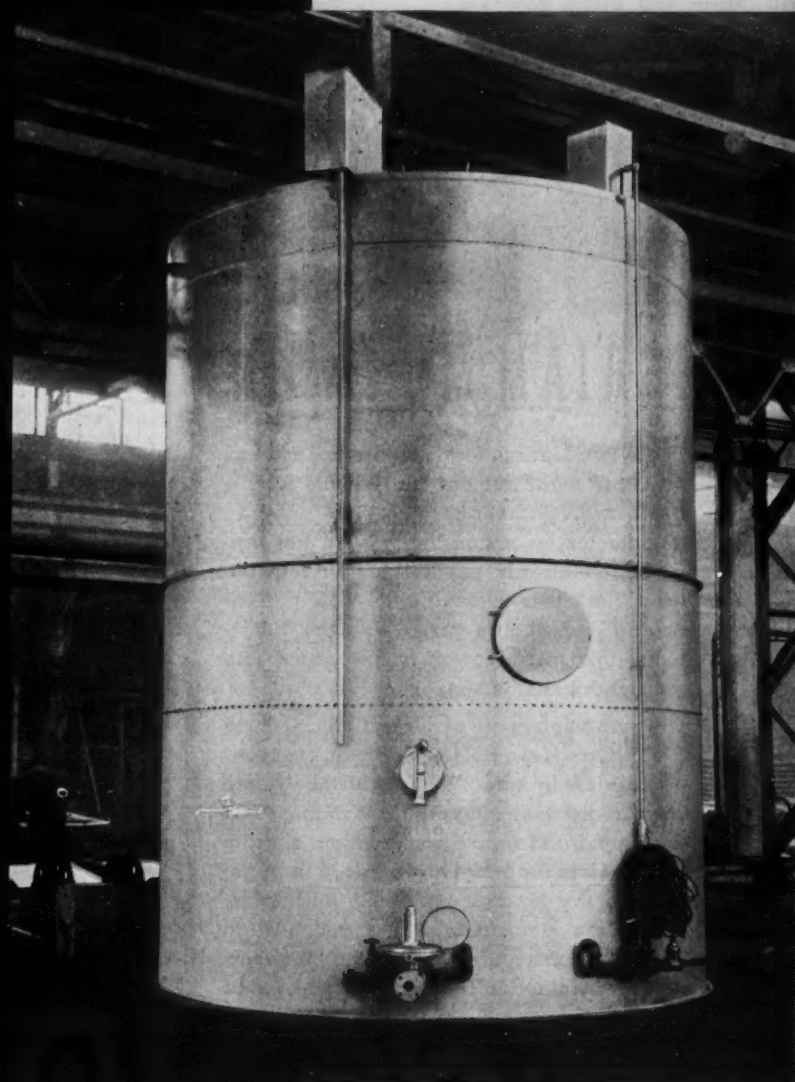
All seams gas-tight. NO HARMFUL EFFECTS TO DRY SEAL.

Wiggins is the ONLY gasholder using an absolutely dry, frictionless seal. No water, tar or grease. No weather worries, operating costs or maintenance problems. No replacement of sealant. Write for new BULLETIN WG-22 . . . or refer to Builders' Committee Report (May, 1951) American Gas Association.



TRADE MARK

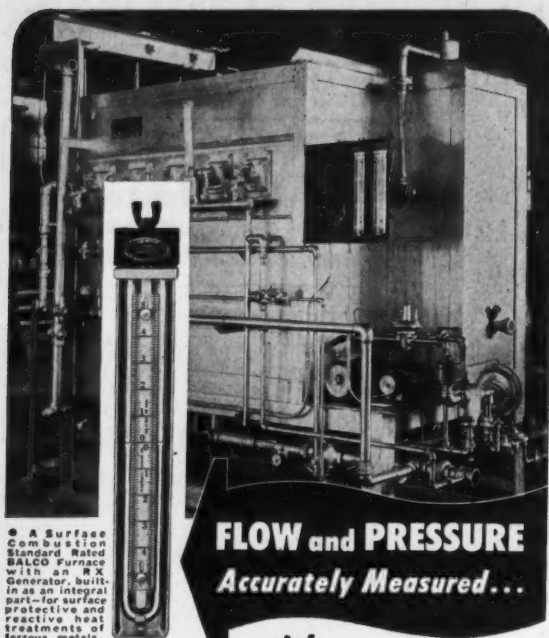
See us at the
General American Display
at the 23rd Exposition
of Chemical Industries,
Booths 285 and 287



Test Wiggins Gasholder—11' 5" diameter, 16' 0" high.
Maximum movement of piston—10' 10 11/16".

GENERAL AMERICAN TRANSPORTATION CORPORATION

135 South LaSalle Street, Chicago 90, Illinois
Branch Offices: Buffalo • Cleveland • Dallas • Houston
Los Angeles • New Orleans • New York • Pittsburgh
San Francisco • Seattle • St. Louis • Tulsa • Washington
Export Dept.: 10 East 49th Street, New York 17, New York
Plants: Birmingham, Ala.; East Chicago, Ind.; Sharon, Pa.



• A Surface Combustion Standard Rated BALCO Furnace with an RX Generator, built-in as an integral part—for surface protective and reactive heat treatments of ferrous metals.

FLOW and PRESSURE
Accurately Measured...

with

MERIAM MANOMETERS

These two Meriam Manometers are used as gas flow measurement instruments for the built-in RX Atmosphere Generator. One manometer measures the flow of the proportioned air-gas mixture to the reaction tube; the other measures the flow of "enriching" gas that is mixed with the atmosphere gas just before it is introduced into the furnace muffle.

The manometers are of the standard U-Type Clean-Out design. The clean-out feature permits filling and cleaning of the U-tube without disconnecting piping to manometer. Of rugged and simple construction, Meriam Manometers are widely recognized throughout industry for their sensitivity and accuracy in the measurement of practically all kinds of liquids and gases. Helpful information is contained in Bulletin 1 — gladly sent upon request.

THE MERIAM INSTRUMENT CO.
10940 MADISON AVENUE • CLEVELAND 2, OHIO
WESTERN DIVISION: 4760 E. OLYMPIC BLVD., LOS ANGELES 22, CALIF.
IN CANADA: PEACOCK BROS., LTD., MONTREAL

MERIAM ★
★ *Instruments*
ESTABLISHED 1911

MANOMETERS, METERS AND GAUGES FOR THE ACCURATE MEASUREMENT
OF PRESSURES, VACUUMS AND FLOWS OF LIQUIDS AND GASES

Instruments Help Hold Water Within Allowable Limits Using Less Alum

Balky 3.5 million gallon per day system behaves, now that continuous pH records are being made

PROBLEM: Having outgrown the city's water supply, Winthrop-Stearns Inc., (a subsidiary of Sterling Drug Inc.) initiated their own water treatment system. Coagulation and sedimentation, key steps in the process, failed to keep sludge from piling up at the sand filters because of improper pH control.

Solution: The 3,500,000 gallon per day program involved coarse screening, pH adjustment, chlorination, removal of waste chemicals by coagulation, sedimentation and filtration, and a final pH adjustment. Because they were downstream from a number of industries including steel, textile and paper mills, their river water contained a large amount of waste in varying quantities and types. And since Winthrop-Stearns manufactures pharmaceuticals, they were anxious to keep all their plant water at drinking water standards.

It was known that flocculation with alum was easiest to carry out at a pH of 5.8. As originally set up, however, pH checks of the raw incoming water were taken every two hours or more often if needed. Variations in pH between tests accounted for spurious results in the coagulation and sedimentation steps which could block the filters in a short period of time.

To improve control of the process, they installed a continuous indicating-recording arrangement of pH

equipment. Beckman pH electrodes were installed at the incoming raw water tank, the coagulation step, and at the sedimentation tank. The electrodes were able to stand 35 psi and temperatures from freezing to 145°F. Three Bristol pH indicators, equipped with alarm contacts, and a Bristol

Multi-Point recorder were installed on a steel panel. This arrangement sounded an alarm whenever pH at any point varied as much as 0.3 pH units from the desired value. It also provided a constant record of values throughout the system so that changes in behavior of the water could be handled.

Results: At first alarm bells sounded so often that they thought they would have to widen the allowable spread. But as the operators learned to act on trends rather than waiting for the alarm to sound, operation smoothed out considerably. Even though pH of the raw water varies from 8.5 to 3.5 (the latter value when an upstream plant dumps waste acid solution), pH at the coagulator usually stays within 0.3 of 5.8. Under normal conditions the variation is less than 0.1.

Controlled pH has resulted in the use of 40% less alum to do the same job as before, while cleaning the filters has been reduced and made a predictable routine job. Still more important to the plant is the fact that by adding an amount of lime dependent only on the flow, water coming from sedimentation is consistently brought to within 0.15 of pH 7.0.

Source: Installation was engineered by The Bristol Company, Dept. CP, Waterbury 20, Conn. . . . or for more information check CP 7017 on form, pages 2 & 3.

Miniature controllers offer fast, accurate performance in graphic panels . . .

controllers are available in fixed or adjustable band types for pneumatic systems

Uses: Miniature controllers are suitable for graphic panel mounting in conjunction with pneumatic system.

Features: Reports indicate fast, close control and convenience of installation and maintenance.

Description: Tel-O-Set controllers are designed to operate with their companion miniature indicators and recorders. Both fixed and adjustable band controllers are available. The fixed band unit is 3-3/8" diam x 6-1/8"

and the adjustable unit is 9" long with the same diameter.

Equipped with a single reset adjustment dial, the fixed band controller may be operated with any reset between 0.2 and 100 repeats per minute. Proportional band is set at 150 per cent. Air supply is 20 psi with controlled pressure varying from 3 to 15 psi. An integral by-pass relay may be provided to give bumpless transfer from automatic to manual operation. Mounting bracket is of a universal design for control room, yoke valve or structure mounting.

The adjustable band Tel-O-Set controller may be adjusted between the limits of 2 and 150 percent with reset rates from 0.2 to 100 or from 0.01 to 5 repeats per

CHEMICAL PROCESSING

minute. Pressure requirements and mounting are the same as those of the fixed band recorder.

Units are constructed of a number of coded, interchangeable sections, separated by diaphragms. Air passages are drilled in the various sections. Except for manual adjustments of reset on the fixed band unit, and reset and proportional band in the adjustable band unit, the controllers operate entirely in response to pneumatic signals from transmitter.

Source: Manufactured by Minneapolis-Honeywell Regulator Co., Dept. CP, Wayne & Windrim Aves., Philadelphia 44, Pa. . . or for more information check CP 7018 on handy form, pages 2 and 3.

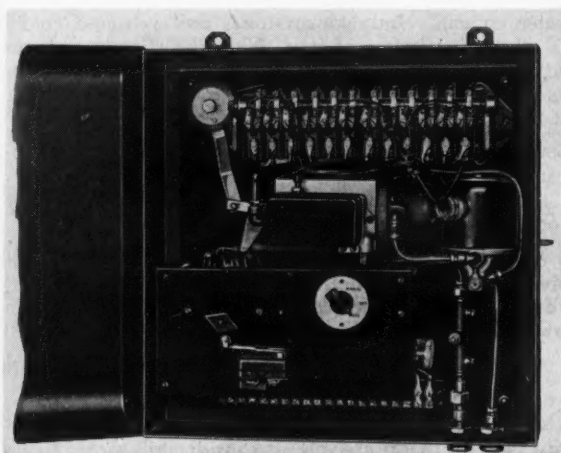
Air conditioning, refrigeration capacity geared to demand by step controller . . .

when power fails, controller shuts system down; starts in sequence when power resumes

Uses: Though applicable to many systems where various distinct steps of power are possible (e. g. where several units are used, any or all of which may be "on" or "off"), it is designed specifically for controlling multiple stages of refrigeration capacity.

Features: In event of power failure, current solenoid returns all units to "off" position. When power resumes, an adjustable time delay of, up to 12 minutes assures that all units start in proper sequence regardless of the demands on the controller.

Description: Capacity control is accomplished by starting and stopping compressors in sequence, by loading and unloading cylinders, or by a combination of both. The unit is available in 4, 6, 8, or 12-switch



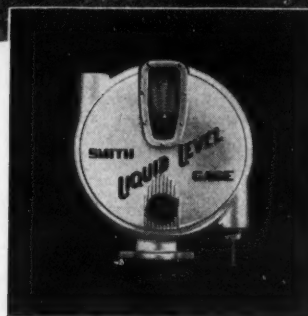
Selects proper capacity level to meet demand

models. Each of the single pole, double throw switches is operated by a pair of cams on a shaft which is rotated by a pneumatic piston in response to a pneumatic temperature or pressure measuring instrument. "On" and "off" points of each switch are individually adjustable over the entire range of operation. Several different springs are available for the piston, to provide a selection of ranges, or the piston may be provided with a pilot positioner which permits adjustment of the operating range.

Source: The Step Controller is a product of Johnson Service Company, Dept. CP, Milwaukee 2, Wis. . . or for more information check CP 7019 on handy form, pages 2 and 3.

OCTOBER, 1951

keep his feet on the ground



A safer worker — no ladder climbing with risk of falls in wet or icy weather. Faster, more accurate, more consistent, eye-level readings. Less product loss — no opening of hatches for old-fashioned manual gaging. Smith Liquid Level Gages are vapor tight.

Easy to install, even while tank is in service. Slip stream float is lowered through 3" opening. No internal guide wires required. Pays for itself in a short time. Simple, precision construction assures trouble-free service and constant accuracy. Thousands in use on varied products in all parts of the world.

For complete instantaneous control of tank stocks, install the SMITHway Remote Control System of remote reading dials at a master control panel. For complete information, see nearest representative. Write for Bulletin No. 147.

Tank gaging comes down to earth with quick, easy, eye-level readings. Calibrated in feet, inches and eighths. For pressures to 2 PSI. Operates on tanks of all shapes and heights to 57 feet. Automatic — requires no manipulation of any kind by the operator.



DEPENDABILITY THROUGH RESEARCH AND ENGINEERING

A.O. Smith

METER DIVISION

FACTORIES: 5715 SMITHWAY STREET, LOS ANGELES 22, CALIF. • P.O. BOX 500, SUCCASUNNA, N.J.

Offices: New York, Chicago, Houston, Canada—Toronto, Vancouver.
International Division—Milwaukee 1, Wisconsin.

When inquiring check CP 7020 on handy form, pgs. 2-3

Yours for the asking...

completely new catalog No. 200-1

**BROWN
THERMOCOUPLE
WELLS**



HERE's the kind of information you want, if you are interested in thermocouple protecting wells.

In addition to the specific product information that you expect to find . . . this new catalog contains *engineering* information on the right well material and the right size and type of well for a wide range of applications. Photographs, dimensional drawings and performance curves help to clarify and simplify your selection.

This catalog is but part of the complete service available to you through your local *Honeywell Supplies Man*...with his HSM Plan for greater convenience and economy in all of your pyrometer supplies purchasing. Call him in for a discussion of your needs . . . he is as near as your phone. Write for your copy of this new catalog, today!

MINNEAPOLIS-HONEYWELL REGULATOR CO.,
Industrial Division, 4421 Wayne Ave., Philadelphia 44, Pa.

**MINNEAPOLIS
Honeywell**

Brown Instruments

When inquiring check CP 7021 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

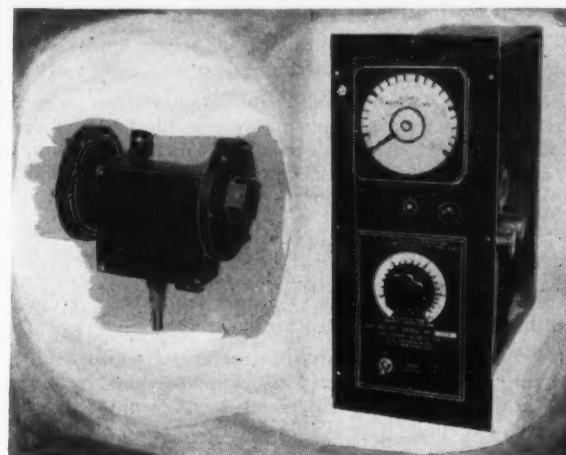
**Sensitive to 1" water column,
pressure controller also
indicates . . .**

electronic instrument can be placed 100 to 250 feet away from its sensing element

Uses: For indicating and controlling differential pressures.

Features: On-off control differential of the instrument is only 1" water column.

Description: Designed so that it may be used with corrosive gases, key parts of the sensing element are made from monel, teflon, or other corrosion resistant materials. Unit pictured has a range from plus 5 to minus 20 inches



water column. Indicator-controller unit is connected by as much as 250 feet of wire to sensing element and can be used, with proper element, to control linear movement, temperature, accelerations, and force. Power requirement is 115 v 60 cps.

Source: Development of The Henry G. Dietz Company, 12-16 Astoria Blvd., Long Island City 2, N. Y. . . or for more information check CP 7022 on handy form, pages 2 and 3.

**Avoiding overcorrective action,
controller waits for effect
before increasing output . . .**

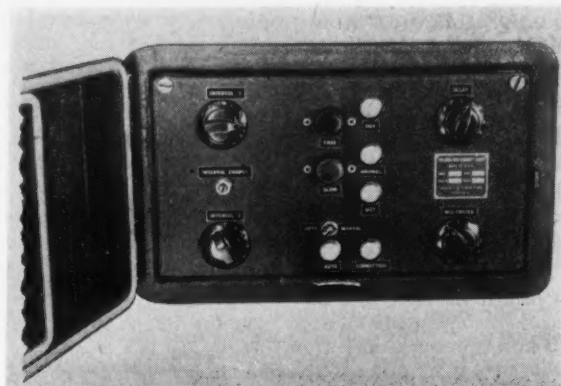
by operating only at specified time intervals, this instrument controls major trends

Uses: For process control of such operations as drying where there are often considerable time lapses between the making of a correction in machine speed, temperature or other variables, and the stabilization of the process variable as a result of the change.

Features: Control may be set up to ignore momentary deviations, then make corrections which are proportional to the deviation from the desired control point at time intervals automatically adjusted to suit machine or process speed.

Description: ARC-1 Automatic Control provides continuous indication and record of the process variable and controls the machine to correct any deviation from the desired set point. It is recommended for processes with large lags on the control side where floating control results in overcorrection and hunting. With this controller, pilot lights constantly indicate when the process variable is within the desired limits, when it is not, and

CHEMICAL PROCESSING



Controller panel showing pilot lights and setting controls

when corrections are being made. Push buttons for manual control are provided on the panel, and other manual control stations may be set up to operate in conjunction with the system.

Source: Developed by Fielden Instrument Corp., Dept. CP, 2920 N. Fourth St., Philadelphia 33, Pa. . . . or for more information check CP 7023 on handy form, pages 2 and 3.

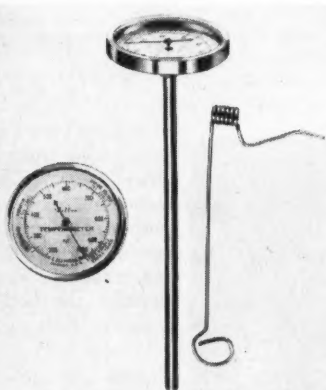
Handles temperature checks in the 200 to 1000°F range . . .

instrument can be inserted directly into molten lead, babbitt, solder, or hot oils and waxes

Uses: Indicating thermometer for checking temperatures in the 200 to 1000°F range.

Features: Construction allows it to be used with molten metals or hot oils and waxes.

Description: This improved version of the Thermometer replaces former 3/4" steel tube and die cast head with an all stainless steel construction. Tube diameter has been reduced to 9/32" by redesign of the bimetallic coil. The stainless tube is closed at the end to prevent fouling of the element by materials tested. In line with other improvements, the dial has been given a new layout and all figures have been anodized to prevent fading or discoloration, it has been reported.

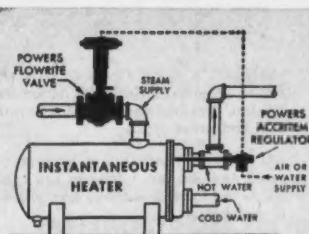


Bi-metallic coil thermometer senses temperatures to 1000°F

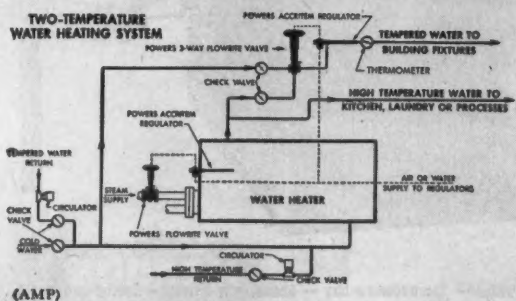
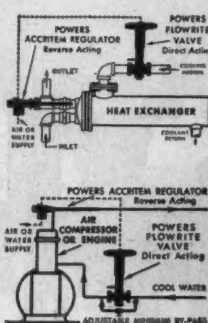
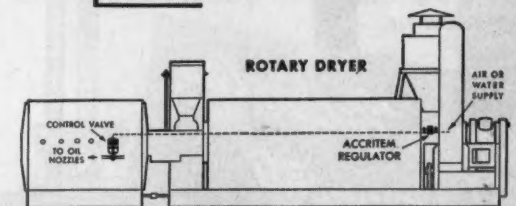
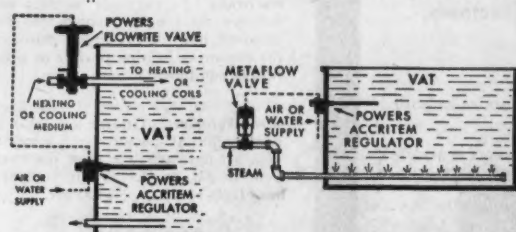
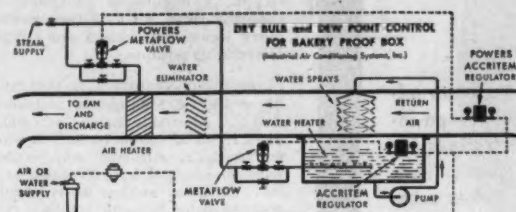
Unit may be furnished with either a handle for suspending it over the lip of a kettle or ladle, or with a 1/4" NPT mounting nut for permanent installation.

Source: Product of W. C. Dillon & Company, Inc., Dept. CP, 1421 South Circle Ave., Forest Park, Ill. . . . or for more information check CP 7024 on handy form, pages 2 and 3.

OCTOBER, 1951



Only a few of many uses



POWERS ACCRITEM REGULATOR



Gives Accurate, Low Cost Heat Control

Use Accritem Regulators to control diaphragm operated valves or dampers. They save labor, stop losses caused by over-heating and have the following—

IMPORTANT ADVANTAGES

- **Adjustable Sensitivity** and over-heat protection.
- **Calibrated Dial** temperature adjustment.
- **Simple, Rugged Construction** withstands vibration and insures many years of reliable service.
- **Temperature Ranges** 50 to 250° F. and 150 to 350° F.
- **Easy to Install** Requires 15 lb. supply of compressed air or water for its operation.
- **Small Size**—regulator head is only 2 3/8" x 3 3/8", sensitive bulb is 12" long with 1/2" I.P.S. connection.



POWERS
FLOWRITE and METAFLOW
Diaphragm Valves
controlled by a **POWERS**
ACCRITEM HEAT REGULATOR
provide an unbeatable
combination for better control
and lower maintenance

Write for Bulletin 316—or phone our nearest office for prices and further information about **POWERS ACCRITEM** regulators and diaphragm valves.

THE POWERS REGULATOR CO.

SKOKIE, ILL. • OFFICES IN OVER 50 CITIES • See Your Phone Book
CHICAGO 13, ILL., 3819 N. Ashland Ave. • NEW YORK 17, N.Y., 231 E. 46th St.
LOS ANGELES 5, CAL., 1808 West 8th St. • TORONTO, ONT., 195 Spadina Ave.
MEXICO, D. F., Apartado 63 Bis.

60 Years of Temperature and Humidity Control

When inquiring check CP 7025 on handy form, pgs. 2-3

Now—Simpler, Faster, Automatic Titrations!



Here's another new Beckman advancement in instrumentation—an instrument that runs your titrations for you. It's the Beckman Automatic Titrator—the instrument that makes accurate titrations more rapidly and conveniently than by manual methods.

SIMPLE OPERATION: In a series of titrations, simply fill the burette, place the sample in the beaker—and the Beckman Automatic Titrator takes over from there. Raising the beaker holder into position automatically starts the stirrer motor and begins delivering titrating solution into the sample.

A special circuit electrically anticipates the approaching end point, scaling down delivery of the titrating solution in progressively smaller increments to assure a highly accurate titration. When the end point is reached, delivery of the titrating solution stops and a light shows completion of the titration—all automatically and without attention from the operator.

Whether your laboratory is large or small the Beckman Automatic Titrator provides important advantages in your titrating operations...

► It releases the technician during titration, enabling him to perform other operations

such as preparing samples, or calculating results.

- It eliminates the fatigue caused by close observation required in manual procedures.
- It gives objective, reproducible results... eliminates errors due to personal factors.
- It provides time-saving conveniences for sample handling.

A New Beckman Instrument
to save time and labor in your laboratory

For full details on this new Beckman instrument see your authorized Beckman dealer—or write direct.
Beckman Instruments, Inc.
South Pasadena 11, California.

Factory Service Branches:
NEW YORK — CHICAGO — LOS ANGELES

BECKMAN INSTRUMENTS
control modern industries

Beckman Instruments include: pH Meters and Electrodes — Spectrophotometers — Radioactivity Meters — Special Instruments

When inquiring check CP 7026 on handy form, pgs. 2-3

PERFORMS A WIDE VARIETY OF TITRATIONS—Neutralization, Oxidation-Reduction, Precipitation, Complex-Formation and other types.

NO SPECIAL TRAINING IS REQUIRED—rapid and accurate titrations can readily be performed without special skill or technique.

QUICK, SIMPLE OPERATION—completes many routine titrations in only 1-1½ minutes—even titrations to 0.1% accuracy in 2½ minutes or less. Change of sample is simple, rapid—a single motion raises, locates and secures new sample in operating position.

CONVENIENT, VERSATILE, ADAPTABLE—0° to 100° C temperature compensation... adjustable holder accommodates 10 ml to 400 ml beakers or similar vessels... instrument may be used with all standard burettes down to 5 ml... as many as four delivery units accommodated by single amplifier control unit... uses standard Beckman electrodes... electrode holders and delivery tip can be pivoted into any required position... ample provision for mounting heating devices or other special equipment.

ALSO A RELIABLE pH METER—the Beckman Automatic Titrator can also be used as an AC-powered pH meter to give accurate readings over the range 0 to 14 pH, as well as millivolt readings from -600 to +1400 mv.

PROCESS INSTRUMENTATION

Evenly graduated meter scale, electronic integration are built into flow meter...

designed for ranges of 53, 119.25, or 212" water

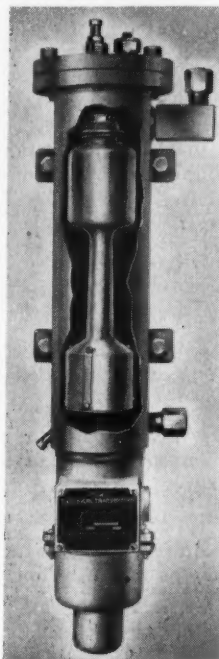
Uses: Available for application as a mechanical flow meter with integral recorder, or as an electrical transmitter to be used with maker's receiver.

Features: Incorporates evenly graduated meter scale and electronic integration.

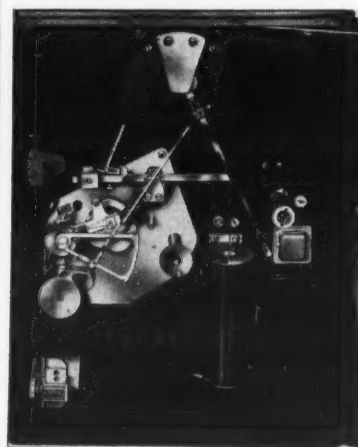
Description: Flow meter is the differential type that is readily installed in a flow line. Meter body is mounted in a convenient location near the line, and the differential pressure lines from the orifice (or other primary element) are piped into ½" SPT connections provided on the meter. For electrical transmitting meters, a 3-conductor cable is run between the meter body and the remotely mounted receiver. Three ranges that are supplied in the meter are: 53, 119.25, and 212 inches of water, for 750 and 1500 psi static pressure. Three ranges are slightly higher for dry calibration.

The electronic integrator incorporated in the meter simplifies the integrating action in flow measurement. Entire integrating mechanism comprises three major assemblies: 1) a scanning unit which checks the flow rate 12 times each minute, as evidenced by the meter; 2) an electronic detector relay which is actuated by the scanning unit and which operates the counting mechanism; and 3) a motor-driven counter assembly that totalizes the successive output impulses from the detector relay, thus integrating the device's flow measurement.

Evenly graduated flow measurement is made possible by a bell that senses the differential



Basis for evenly graduated flow measurement



Flow meter's electronic integrator simplifies integrating action in flow measurement. Note varied components forming this specific unit

pressure created by a fluid flowing through an orifice or other primary element, and moves in proportion to the square-root of this differential. Functionally, the bell is a hollow float whose inside surface is shaped to give a square-root response to differential pressure changes. It is housed in the meter body, with the open end sealed by a pool of mercury at the bottom of the meter body. Mercury serves also to support the weight of the bell

PROCESS INSTRUMENTATION

and attached parts. High pressure line from the orifice goes directly into the meter body and applies pressure against the outside of the bell. Low-pressure line enters the meter body through the low-pressure tube which, in turn, passes through mercury, through the mercury pool, and on up inside the bell. Thus, the bell floats in the mercury pool providing a seal between the two.

Differential pressures cause bell to move, and this motion is transmitted to the attached mechanical instrument through a pressure-tight bearing and system of levers. In the electrical flow meter, the bell transmits motion to an armature inside the core tube of the inductance bridge transmitter by means of a shaft which extends through the low-pressure tube. This tube also provides a means of guiding the bell in its vertical movement.

Bell contacts tube at 2 points, one at either end of the shaped tube. Three round-nosed screws are provided at the lower end of the bell for making the necessary contact. Upward movement of the bell is limited by an externally adjustable positive zero stop.

Source: Development of the Brown Instruments Division of the Minneapolis-Honeywell Regulator Co., Dept. CP, Wayne & Roberts Aves., Philadelphia, Pa. . . . or for more information check CP 7027 on handy form, pages 2 and 3.

Miniature electronic controls credited with minimum response time . . .

versatile instruments handle flow, pressure, level or temp and are interchangeable without recalibration

Uses: Automatic recorders and controllers can be used in typical instrument applications to variables of pressure, temperature, level, or flow rate.

Features: System is electronic throughout. Response time is reported to be minimum with virtually all lags eliminated.

Description: Autronic controls are instruments of the miniature type. The compact design calls for no moving parts and is arranged to 'plug in' to panels. An all-electronic system maintains continuous balance without slidewires or other contacting mechanisms. Though pen action is normally extremely rapid and accurate, its speed can be slowed where special applications call for it.

Standard chart width for recorders is three inch and one chart loading lasts a month. At any time, a period of about three hours record is shown, but previous record can be pulled out for inspection without removing the recorder from its position.

System uses electrical sensing elements which convert process variables into small voltages. These voltages are transmitted to controllers. Controller voltage or pressure is applied to final control element. Recorders operate independently of controllers and can be mounted in graphic panels. Cable length is unimportant and no recalibration is necessary up to distances over 1000'.

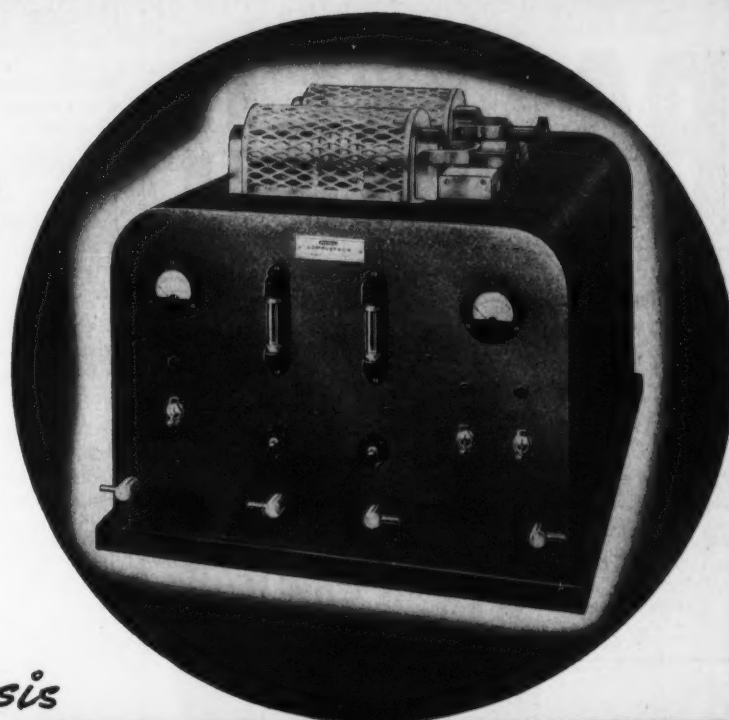
Also, since the primary measuring elements produce a voltage which is always within the same range for all elements, the controllers and recorders are interchangeable in the field without recalibration.

Source: These instruments were developed by The Swartwout Company, Dept. CP, 18511 Euclid Ave., Cleveland 12, Ohio . . . or for more information check CP 7028 on handy form, pages 2 and 3.

TWO TUBES . . . TWO CIRCUITS COMBUSTRON MODEL 120

by **BURRELL**

*For carbon analysis
in ferrous metals*



COMBUSTRON ELECTRONIC INDUCTION HEATER

TWO SEPARATE CIRCUITS PROVIDE TWO UNITS IN ONE

Once again—Burrell has blazed a trail to greater value and service. With a Combustron, Model 120, users get two separate high frequency induction heaters built into one compact laboratory instrument. Operation of one circuit does not affect operation of the other in any way. Thus users get dual value— for heavy production or standby convenience.

Loading is horizontal for greatest flexibility. Combustion boats may be used for a great variety of samples ranging from coarse to fine meshes and low to high carbon content including alloy steel, cast iron and stainless steel. And—for analysis of low carbon steels, each Burrell combustion boat will take up to a full factor weight of coarse drillings.

Either Combustron model—two tube or one tube—provides rapid and accurate analysis of carbons-by-combustion.

Order direct from Burrell or Write for Bulletin No. 319.

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LABORATORY APPARATUS FOR SCIENTISTS EVERYWHERE

COMBUSTRON MODEL 120

Two Tubes—Two Circuits
115 Volt—60 Cycle
\$1100.00

COMBUSTRON MODEL 110

One Tube—One Circuit
115 Volt—60 Cycle
\$750.00

BURRELL



When inquiring check CP 7029 on handy form, pgs. 2-3

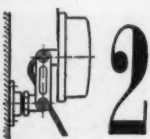
PALMER

mercury actuated Dial Thermometers
now in three types to suit any requirements



1
Rigid Stem Dial Thermometer

Rigid stem tapered bulb, interchangeable with standard industrial thermometer separable socket.



2
Wall Mounted Dial Thermometer

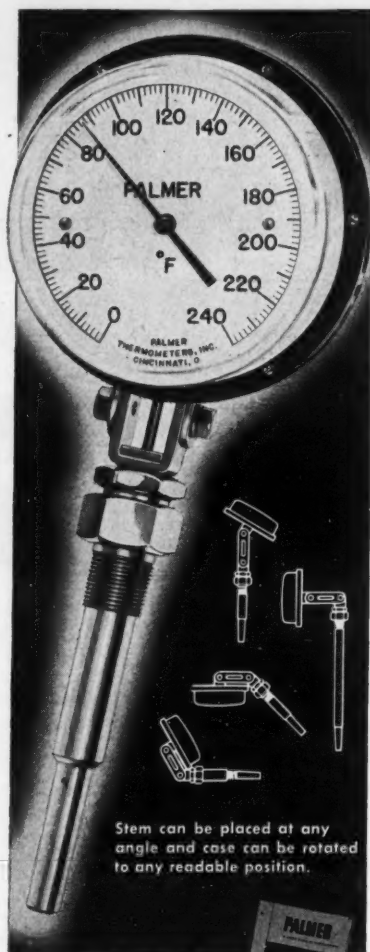
Wall mounted dial thermometer with flexible connecting arm. Case adjustable to easy reading position.



3
Flush Mounted Dial Thermometer

Flush mounted style for panel mounting with flexible connecting arm.

All three types have a full 4 1/2" dial face



Stem can be placed at any angle and case can be rotated to any readable position.

SEND FOR THIS BULLETIN
For details on the New Palmer Dial Thermometer, please write for Palmer Bulletin 51-129.

for accuracy: Mercury actuated . . . Fully Compensated by Invar Compensation. Guaranteed Accurate 1 scale division.

for angularity: Can be adjusted to most readable position at any angle desired.

for readability: Bold Black Numbers . . . 1 1/2" of scale Reading Dial face can always be placed in easiest readable position.

for interchangeability: Always specify "PALMER" Separable sockets as they are interchangeable for Dial or Industrial type Thermometers.

PALMER THERMOMETERS, INC.
Mfrs. of Industrial Laboratory
Recording and Dial Thermometers
2528 Norwood Ave., Cincinnati 12, O

When inquiring check CP 7030 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

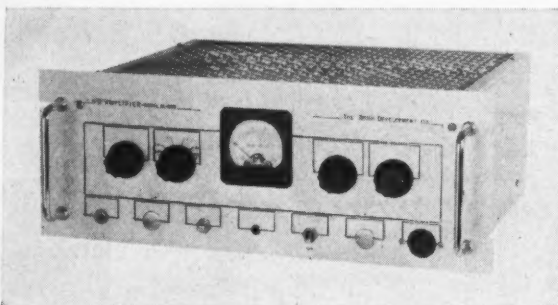
**Direct coupled amplifier
has voltage gain
of 1000 . . .**

response is linear from DC to 100 cycles per second

Uses: Ability to amplify DC as well as AC signals makes it useful in oscillographic studies of static or dynamic conditions. Strains, displacements, pressures, light intensities, temperatures and AC or DC measurements are examples.

Features: Voltage gain is approximately 1000. This is sufficient to give one millimeter of deflection per millivolt of signal on manufacturer's direct writing oscillograph.

Description: Designed for use in a standard 19" wide rack, Model BL-962 has a 7" high front panel. Control panel on the front face of the instrument contains an attenuator with five factor-of-ten positions, gain control, calibrating meter, and controls for determining input



Amplifier has voltage gain of 1000

voltages. Balancing potentiometer is provided for electrically biasing oscillograph pen to any position on the chart. Input jack and output sockets are located on both the front panel and rear of the chassis.

Effects of power line fluctuation are minimized by design features combined with both plate and filament voltage regulation. Zero signal drift amounts to not more than one chart millimeter per hour. When the amplifier is used with the penmotor, the frequency response is essentially linear from DC to 100 cycles per second. Detailed description is available.

Source: Product of Instrument Division 12, The Brush Development Co., Dept. CP, 3405 Perkins Ave., Cleveland 14, Ohio. . . or for more information check CP 7031 on handy form, pages 2 and 3.

**Dual-channel oscilloscope
announced . . .**

first time a flat frequency response from 0 to 1 megacycles has been offered

Uses: Dual-channel oscilloscope finds broad application as a laboratory indicator for work requiring high sensitivity and gain.

Features: Reported by maker to offer for the first time a flat frequency response from 0 to 1 megacycle.

Description: Model H-23 makes use of two independent channels working into a single 2-gun cathode ray tube, permitting high or low frequency phenomena to be viewed either singly or simultaneously on a single tube face. Vertical deflection amplifiers have capacitive and conductive input attenuators that allow operation as either alternating current or direct current coupled amplifiers.

**where
there's
heat . . .**



**send for bulletin
now!**

Alnor

**PRECISION INSTRUMENTS
FOR EVERY INDUSTRY**

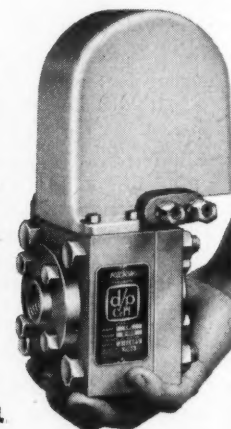
When inquiring check CP 7032 on handy form, pgs. 2-3

**SIMPLER FLOW
MEASUREMENT
in the palm
of your hand**

NEW! MERCURY-LESS!

FOXBORO

DIFFERENTIAL PRESSURE CELL



Simplify troublesome flow problems . . . especially where corrosion is a factor or the use of mercury is objectionable. This unique flow measuring device

— the Foxboro d/p Cell — reduces installation and operating costs, combines measurement and transmission in one simple, compact unit.

OUTSTANDING FEATURES

- Uses no mercury
- Zero Displacement
- Easily calibrated
- Steel or Stainless Steel Construction
- Weighs only 20 pounds
- Ranges: 25" to 800" H₂O

WRITE FOR BULLETIN 420. The Foxboro Company,
19010 Neponset Avenue, Foxboro, Mass., U.S.A.

FOXBORO
Reg. U.S. Pat. Off.

**ACCURATE
FLOW MEASUREMENT**

When inquiring check CP 7033 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESS INSTRUMENTATION

Each channel is supplied with an independently operating sweep generator. Both channels may be switched to the same sweep, allowing examination of two related phenomena on a common time base. The sweep generators are designed for either single sweep or recurrent operation.

Independent control of intensity, focus and positioning of each of the electron beams is available. Intensity modulation of each of the cathode ray beams is also possible.

Source: Announcement of the Electronic Tube Corporation, Dept. CP, Philadelphia 18, Pa. ... or for more information check CP 7034 on handy form, pages 2 & 3.

Automatic titration now precise, fast, flexible . . .

makes use of standard laboratory accessories, provides accommodation for variety of chemical systems

Uses: Automatically performs any titration in which the end point can be represented by a specific potential across a suitable pair of electrodes immersed in the test solution.

Features: Titrations are both precise and easily performed. Equipment employs standard laboratory accessories (burets, stirrers, glassware), is said to occupy a minimum amount of space, and has simple controls that provide flexibility to accommodate various chemical systems.



Automatic titrator

titrant is progressively restricted until the end point is exactly attained. Complete details are carried in Bulletin B-223.

Source: Development of Coleman Instruments, Inc., Dept. CP, 318 Madison St., Maywood, Ill. . . . or for more information check CP 7035 on handy form, pages 2 and 3.

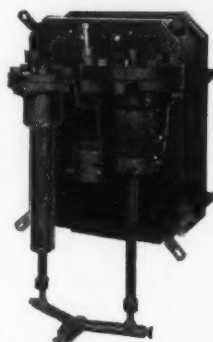
Five mercury switches presented

Four-page illustrated catalog presents five designs of mercury switch which are available. Powerwise the switches range from 1 to 45 ampere on 115 volt lines, but they can also be classed according to actuation angle which runs from more than 12 to less than 5°. Typical applications of mercury switches show the extremely simple solutions which they supply in some instrumentation problems.

Catalog Hg-1 is issued by Micro Switch, Dept. CP, Freeport, Ill. When inquiring specify CP 7036 on handy form, pages 2 and 3.

OCTOBER, 1951

*Joe—
You can't beat this Taylor Mercury
Manometer for performance.
There's no seizing —
thanks to TEFLON BEARING*



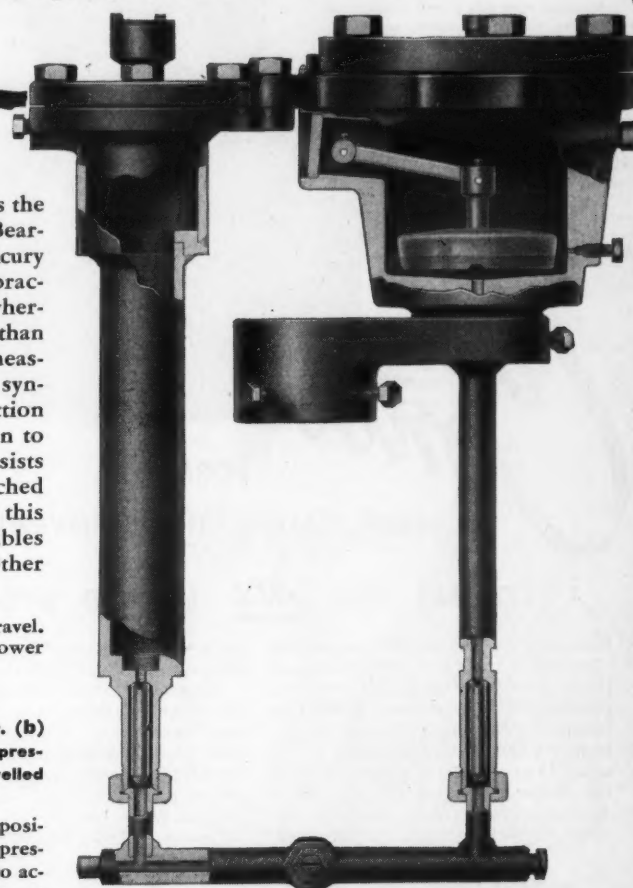
SATISFIED customers tell us the "Teflon" Pressure-Tight Bearing makes the new Taylor Mercury Manometer seize-proof and practically leak-proof. It's ideal wherever you need something better than present differential pressure measuring instruments. Teflon is a synthetic plastic that minimizes friction and eliminates seizing common to metal-to-metal bearings. It resists corrosion because of unmatched chemical inertness. That's why this

Taylor Manometer ends pressure-tight bearing troubles that may have blocked precise control for years. Other features:

- 1. Great Power**—thanks to extra-big float with extra-long travel. Micro-inch finished shaft with Teflon bearings "float" this power right through to the pen.
- 2. High Accuracy**—inherent straight-line calibration.
- 3. Positive Actuation**—high energy output. (a) Big $3\frac{5}{16}$ " float. (b) Long float travel—1". (c) Simple lever system. (d) Teflon in pressure-tight bearing surfaces for efficient use of power. (e) Jewelled thrust bearing.
- 4. Dependable Performance.** (a) Submerged check valves give positive shut-off. (b) Unique damping valve adjustable under full pressure without leakage. (c) Ample room in mercury chambers to accommodate surges or pulsating flows. (d) Teflon holds pressure, yet lets shaft turn freely, giving long service.
- 5. Great Adaptability.** (a) Six interchangeable range tubes: 10", 20", 50", 100", 200" and 400" of water. (b) All ranges except 10" may be over or under ranged $33\frac{1}{3}\%$. (c) Both side and top pressure connections. (d) Two manometers can be mounted on back of single case for recording two Flows or for Ratio-Flow control. (e) A union coupling prevents distortion of bearing housing—eliminates binding or friction caused by wrench-torque.
- 6. Ease of Maintenance.** (a) Low pressure chamber cover permits easy access to float and lever arm during calibration. (b) Entire pressure-tight bearing easily and economically replaced.



Ask your Taylor Field Engineer, or write for bulletin 98182. Taylor Instrument Companies, Rochester, N. Y., or Toronto, Canada.



Instruments for indicating, recording and controlling temperature, pressure, flow, liquid level, speed, density, load and humidity.

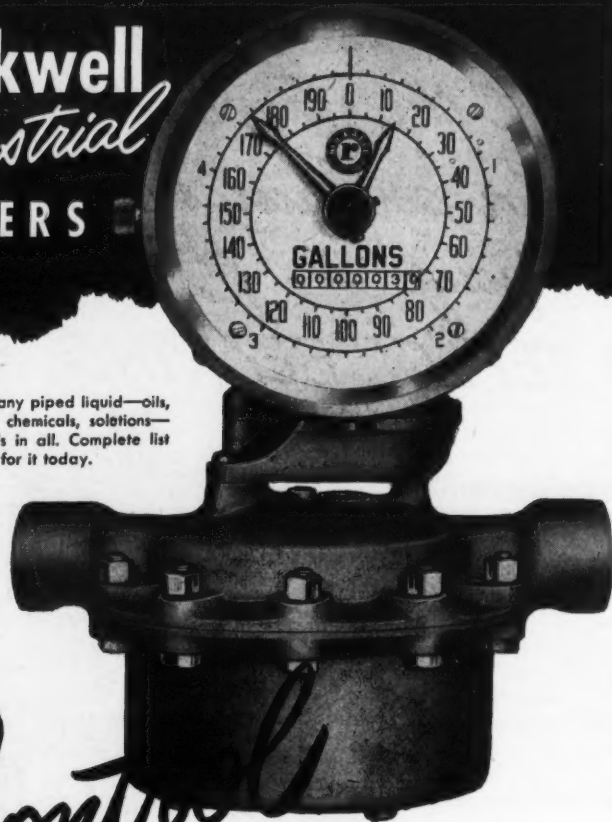
Taylor Instruments
— MEAN —
ACCURACY FIRST

IN HOME AND INDUSTRY

When inquiring check CP 7037 on handy form, pgs. 2-3

Rockwell Industrial METERS

Measure most any piped liquid—oils, liquors, paints, chemicals, solutions—over 50 liquids in all. Complete list in bulletin, ask for it today.



Control

FORMULAS

COST CALCULATIONS, INVENTORIES

ACCOUNT FOR ALL LIQUID STOCKS

Rockwell industrial meters quickly repay their nominal cost wherever liquids are purchased, processed or consumed. Thousands of refiners, distributors, compounders and manufacturers rely on these precise measuring instruments to account for all movements of piped liquids within their plants. They use them for formula control, for cost identification

purposes, for inventory control. You, too, can use them profitably.

Remember, the losses identified by Rockwell meters usually can be quickly corrected. If not, then as such, they provide a measure for basic accounting to permit tax reductions and other processing cost calculations. Get full facts now. Use the coupon or write for Bulletin OG-400.

MAIL COUPON
TODAY

ROCKWELL MANUFACTURING COMPANY
400 N. Lexington Avenue
Pittsburgh 8, Pa.

Gentlemen: I am interested in measuring _____

(Name of Liquid)

Pipe Size _____ Working Pressure _____ psi Temperature _____ °F. max.
Max. Flow Rate _____ gpm Min. Flow Rate _____ gpm

YOUR NAME _____

COMPANY _____

STREET _____

ZONE _____

STATE _____

CITY _____



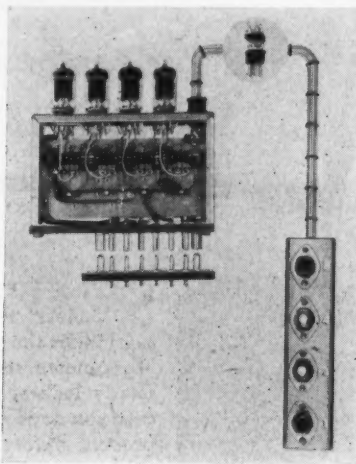
When inquiring check CP 7038 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

**Remote indicating unit
counts as fast as
130,000 per sec**

Uses: Used as an indicating counter of electrical pulses at rates up to 130,000 impulses per second.

Features: Four large quarter-watt neon lamps, arranged in a 1-2-4-8 decimal coding, make it possible to read the counter quickly and accurately



Counter is connected by cable to remote readout

even under high ambient light conditions, wide angles, and at a distance where numbers could not be distinguished.

Description: Compact redesign of an earlier model has resulted in a miniature version of the four-tube Electronic Counter Decade. Two models are available which differ only in their speed capabilities. Model 12 handles as many as 130,000 counts per second, while model 13 gets 30,000 counts per second.

The miniature decades are available with either a remote panel-mounted readout or with a small neon cluster on the decade frame where the intended use is tube servicing.

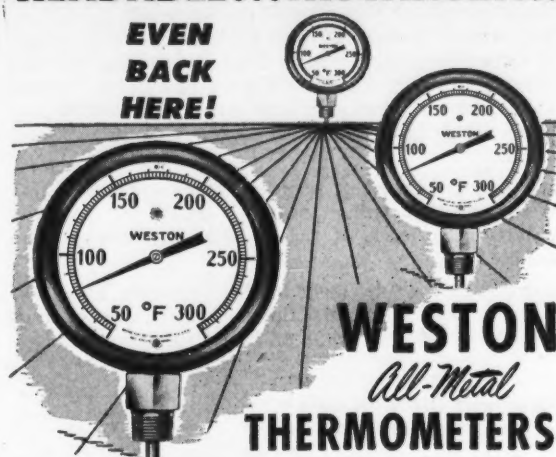
Source: Product of Potter Instrument Company, Inc., Dept. CP, 115 Cutter Mill Road, Great Neck, N. Y. . . . or for more information check CP 7039 on handy form, pages 2 and 3.

Pressure regulators shown

Bulletin illustrates and describes precision pressure regulators, temperature regulators and combination pressure and temperature regulators. Bulletin 751 is issued by the O. C. Keckley Co., Dept. CP, 400 W. Madison St., Chicago 6, Ill. When inquiring specify CP 7040 on handy form, pgs. 2 & 3.

READABLE...INSTANTLY...

**EVEN
BACK
HERE!**



WESTON
All-Metal
THERMOMETERS

Seconds count when things go wrong . . . wherever temperatures are critical. And not even a split-second is lost in reading temperatures accurately, when the thermometers are WESTON. Their large, boldly marked faces are readable, even from a distance. And the rugged, all-metal construction of WESTON bi-metal thermometers assures dependable, trouble-free operation. Available in types, sizes and stem lengths for most industrial applications. Write for bulletin T-13. Weston Electrical Instrument Corporation, 597 Frelinghuysen Avenue, Newark 5, N. J. . . . manufacturers of Weston and Tagliabue Instruments.

WESTON *Instruments*

When inquiring check CP 7041 on handy form, pgs. 2-3

Really New!

**A FLEXIBLE
MANOMETER**



**Just
Roll It Up
and Tuck It
Away**

No more cumbersome 2', 3', or 4' manometers to cart around. This new flexible Dwyer Manometer will fit into your pocket or the corner of your service kit. This revolutionary instrument is fabricated of tough, vinyl plastic that will serve for years. The plastic scale is firmly supported between the tubes. Standard ranges from 8 in. to 6 ft. of water or mercury. It is highly accurate, easy to read and convenient. Nothing like it for field work. Write for complete information.

F. W. Dwyer Mfg. Co.

33 S. WESTERN AVE.

CHICAGO 12, ILL.

When inquiring check CP 7042 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESS INSTRUMENTATION

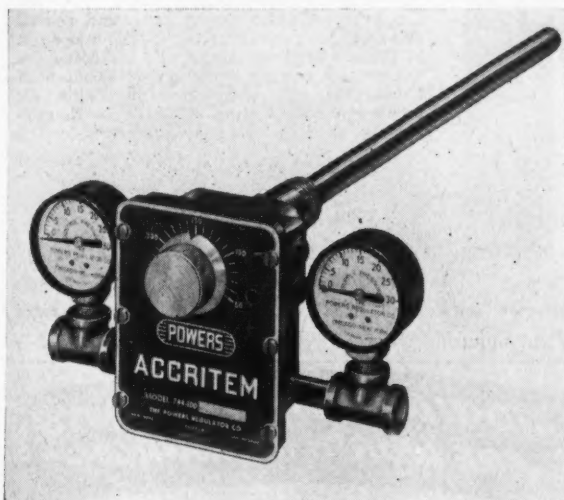
Temperature sensitive controller uses compressed air or water as working medium . . .

differential thermal expansion of invar-copper element controls 15 to 20 psi line

Uses: For temperature control of flowing liquids or gases and liquids in vessels. Two models have composite range from 50 to 350°F.

Features: Sensitive element consists of an invar rod enclosed by a silver-soldered copper bulb.

Description: Accritem requires a clean, reliable supply of water or compressed air at 15 to 20 psi. When water operated, a drip plug is furnished which discharges to drain at atmospheric pressure. The pressure of this working medium at control valves is varied by a valve within the unit. The plunger of this valve is connected



Controller for diaphragm valves in heating or cooling operations

to an invar rod supported at the far end of a bayonet of copper tube. Differential expansion of the copper and invar thus controls diaphragm valves in the heating or cooling line.

Accritem is mounted with the temperature sensitive bayonet at the point where the desired temperature is to be maintained. Input and output control pressures are shown on gauges on these respective lines. These gauges, at any time, indicate whether the system is active or not. Large knob at upper center of face (see cut) is used to set the control temperature. In addition to this control, a restriction screw permits adjustment from gradual to positive action. Two models are available. Each has a range of 200°F. Standard dial reads 50 to 250°F and the higher temperature dial runs 150 to 350°F. Sensitivity can be adjusted between the limits of 1/4 and 2 1/2 psi control pressure per °F. Either of these models can be set up to open or close a diaphragm valve when the control point is reached. Spring loaded diaphragm valves are used.

Instrument is flexible and has been used in a variety of applications. Construction is rugged with body being made of brass and wearing parts of phosphor bronze. The minimum of moving parts helps make this an instrument with a long life.

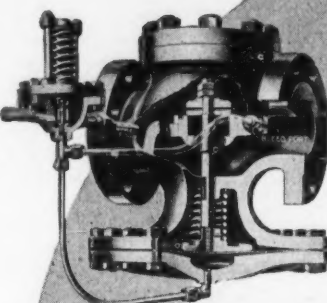
Source: Product of The Powers Regulator Company, Dept. CP, 3501 Oakton Street, Skokie, Ill. . . . or for more information check CP 7043 on handy form, pages 2 and 3.

OCTOBER, 1951

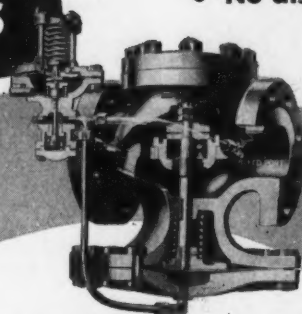
SAVE WITH SPENCE on all these jobs

Here are a few reasons why Spence Regulators give you accurate regulation and long, trouble-free life:

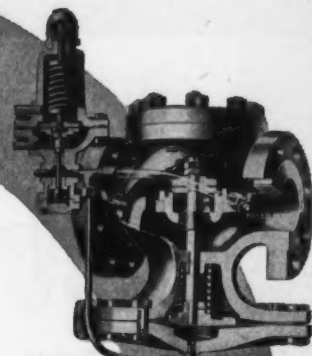
- Single-seat Packless Construction
- Large Balanced Metal Diaphragm
- Sensitive Pilots
- SECO Metal Seats and Discs
- Springs out of path of steam
- No dismantling for inspection



BACK PRESSURE CONTROL—Wide selection of sensitive pilots to meet exacting requirements. Initial pressure closing, guaranteed to shut tight. Packless construction, metal diaphragms.

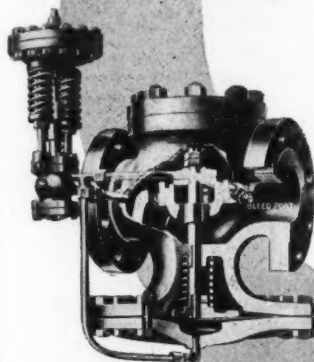


PRESSURE REDUCING—Self-operated, dead-end regulators powered by large, frictionless, metal diaphragms. Sizes 1/4 in. to 12 in. Pressures to 600 psi 750 F.

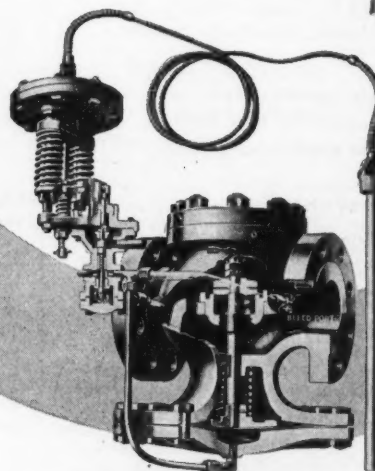


DIFFERENTIAL PRESSURE—Accurate control of delivery pressure at a constant, adjustable differential from 3 to 150 psi above another source of fluid pressure.

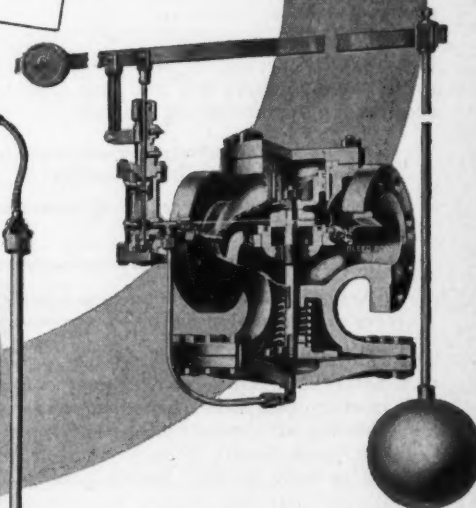
WRITE FOR BULLETIN 350
for complete details on
Spence's line of automatic
regulating valves



PUMP GOVERNOR—Constant or excess pressure control for steam pumps. Steam pressures to 600 psi 750 F, pump discharge pressures to 2000 psi.



TEMPERATURE REGULATING—Combined temperature and pressure control. No separate reducing valve required. Shuts tight, will not wiredraw or be damaged by overheating. Sizes to 12 in.

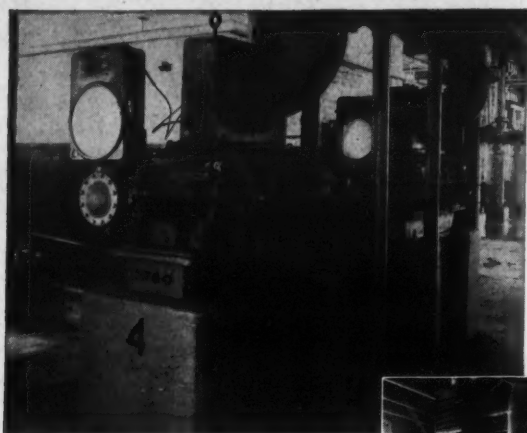


LEVER OPERATED—Pilot lever for connection by cable or mechanical linkage to floats or other devices. Slight actuator motion opens and closes main valve.

SPENCE ENGINEERING COMPANY, INC.
WALDEN, NEW YORK

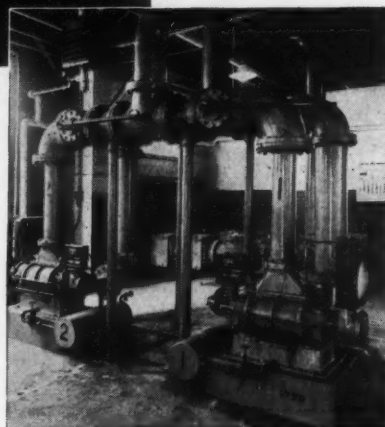
Spence

When inquiring check CP 7044 on handy form, pgs. 2-3



The four meters illustrated are part of a total installation of nine R-C Meters in a large processing plant. These units measure acetylene gas sold to nearby manufacturers, who also use R-C Meters at the receiving ends. Capacities range from 3,000 cfh to 130,000 cfh.

YOU CAN ALWAYS **trust** R-C METERS



If you're measuring gas for production processes, you can't take any chances on quantities. If you are buying or selling it, you need cash register accuracy. You want equal precision for departmental cost accounting.

The permanent accuracy of R-C Positive Displacement Meters has long been proved for all these purposes by manufacturers and utilities which buy, sell and use gas. Four important reasons account for this unvarying reliability:

1. Accuracy is not affected by variations in specific gravity, rate of flow, pulsation, moisture, impurities or uncontrollable factors.
2. Accuracy is not subject to adjustment of meter or recorder by operators or other persons.
3. Accuracy is not affected by reasonable overloads.
4. Accuracy is permanent because measuring chambers are surrounded by precision-machined, cast-iron surfaces.

The 31 standard sizes of R-C Meters give capacities from 4,000 cfh to 1,000,000 cfh. They are extremely compact, permitting installation in cramped spaces. Indicating and recording instruments are available for all types. For whatever purposes you measure gas, you can permanently depend on R-C Meters. Ask for Bulletin 40-B-14 or write us your specific problem.

ROOTS-CONNERSVILLE BLOWER CORPORATION
510 Richland Avenue, Connersville, Indiana

ROOTS-CONNERSVILLE

ONE OF THE DRESSER INDUSTRIES



When inquiring check CP 7045 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

**Steel's carbon determined
in five or ten minutes
within 0.0002% . . .**

combustion-conduction method
uses Wheatstone bridge principle

Uses: For determining carbon in steel running 0 to 0.035%. High carbon contents can be estimated if the 1 gram sample is reduced proportionally.

Features: Taking only about five or ten minutes, the determination is accurate to within 0.0002% carbon.

Description: CD-10 Conductometric Carbon Determinator operates in the following way: a 1 gram sample of the steel is burned in a stream of purified oxygen. Gaseous combustion products are scrubbed of sulfur compounds, etc., and then passed through a barium hydroxide solution. Changes in conduction of the hydroxide are compared against standard hydroxide solution in a Wheatstone bridge circuit. Circuit balance control is read in ohms, which can be converted by calibration into carbon content.

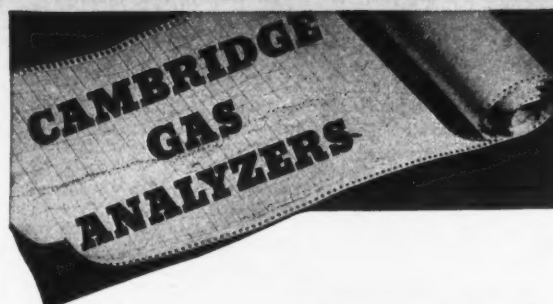
Determinator unit consists of a purifying train, rotometer tower, needle valve assembly, mercury manometer, constant temperature water bath, absorption cell, Wheatstone bridge, and copper oxide catalyst furnace. The bridge circuit employs a small cathode ray tube, reported to give better accuracy than a galvanometer.

Source: Product of Laboratory Equipment Corporation, Dept. CP, St. Joseph, Mich. . . . or for more information check CP 7046 on handy form, pages 2 and 3.

**Output of freq converter
from 3/4 to 100 kw**

Induction frequency converters outlined in four-page bulletin are stated to produce 3-phase power, at frequencies generally 20% higher than standard line frequencies of 25, 50 and 60 cycles, more economically than other conversion methods. Output ratings range from 3/4 to 100 kw and from 62.5 to 420 cycles.

Operating features are listed along with those construction details designed to protect the unit against physical damage, electrical breakdown and operating wear and tear. Other material considers applications, modifications and limitations, and complete tables of ratings and frame sizes. GEA-5637 is issued by General Electric Co., Dept. CP, Schenectady 5, N.Y. When inquiring specify CP 7047 on handy form, pages 2 and 3.



detect O₂ in FEED WATER



Continuous records of the oxygen dissolved in boiler feed water and of the hydrogen entrained in steam, indicate when corrective measures are necessary to prevent otherwise unsuspected and costly corrosion. Cambridge Analyzers measure and record dissolved oxygen directly. The hydrogen in the steam is measured and indicates the quantity of oxygen set free by dissociation. Cambridge Instruments are available for continuously recording either O₂ or H₂ separately, or O₂ or H₂ simultaneously.

Send for Bulletin 148 B.P.

**CAMBRIDGE
INSTRUMENT CO., INC.**

3769 Grand Central Term., New York 17, N.Y.

PIONEER MANUFACTURERS OF PRECISION INSTRUMENTS
When inquiring check CP 7048 on handy form, pgs. 2-3

**"LIQUIDS WORTH STORING
ARE WORTH MEASURING"**

with a

LIQUIDOMETER

- FOR GAUGING LIQUIDS OF ALL KINDS
- 100% AUTOMATIC
- APPROVED BY UNDERWRITERS' LABORATORIES



WRITE FOR COMPLETE DETAILS
THE LIQUIDOMETER CORP.
38-18 SKILLMAN AVE., LONG ISLAND CITY, I.N.Y.

When inquiring check CP 7049 on handy form, pgs. 2-3

CHEMICAL PROCESSING

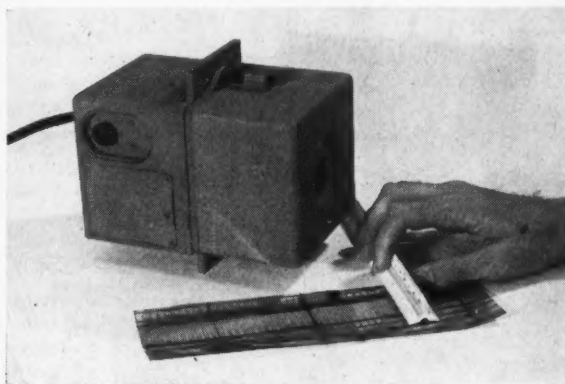
Midget oscillograph has nine channels . . .

suitable for recording 9 separate phenomena during mobile testing programs

Uses: Oscillograph makes a permanent record of as many as 9 separate phenomena on film $3\frac{1}{2}$ " wide x 40' long. Vibration, pressure, strain, velocity, etc., are phenomena that can be simultaneously recorded.

Features: Midget unit measures $5 \times 5 \times 8$ ", making it suitable for mobile testing programs.

Description: Type 5-118 Recording Oscillograph operates from a 28 v DC power source. Galvanometers are mounted in a stable, cast magnet block to insure



'Vest-pocket' 9-channel oscillograph

uniformity. They are accessible for adjustment or replacement when the film magazine is removed. A translucent cover on the galvanometer opening hinges back to serve as a graduated screen for vertical and horizontal adjustment of light spots. Tools for galvanometer adjustment are conveniently stored in the magazine.

Film magazine is completely light tight and separates from the oscillograph without danger of film fogging. Magazine also contains the entire record transport system which drives the film past the optical system at precise rates.

Selection of magnetically damped galvanometer makes this instrument adaptable to a variety of testing programs. Sensitivity of the instrument is such that no frequency amplification is required.

Source: Development of Consolidated Engineering Corp., Dept. CP, 300 N. Sierra Madre Villa, Pasadena 8, Calif. . . . or for more information check CP 7050 on handy form, pages 2 and 3.

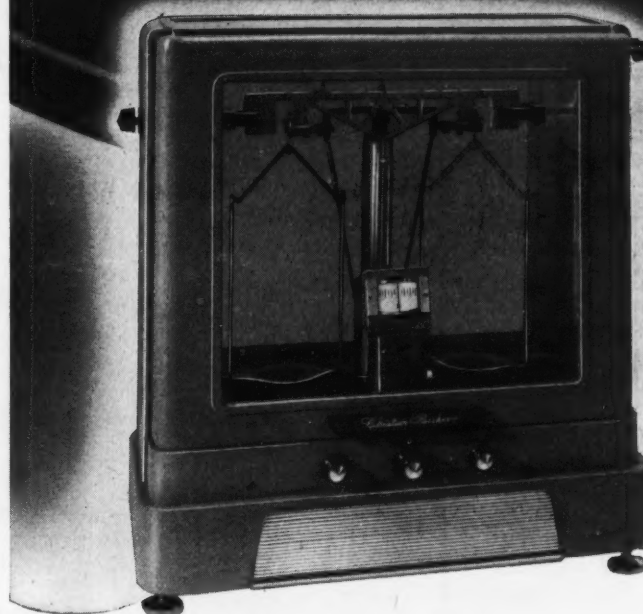
Reports on control systems for proportioning fluid flow

Six-page catalog outlines principle of operation of systems for proportioning the flow of fluids (gases, liquids, slurries) in two or more lines. Presents diagrams and views of equipment and installations. Typical applications are mentioned in the proportioning of reactants in processes such as: phosgene—chlorine and carbon monoxide; vinyl plastics — acetylene and hydrochloric acid; ceramics — clay slip and process chemicals; and rocket research — liquid oxygen and fuel. Catalog 53 is issued by Fischer & Porter Co., Dept. CP, 4600 County Line Road, Hatboro, Pa. When inquiring specify CP 7051 on handy form, pages 2 and 3.

Speedy, Accurate Weighings • Improved Operation • Prolonged Sensitivity

with the new

**CHRISTIAN
BECKER
Projectomatic
Analytical
Balance**



The newly designed Projectomatic balance makes possible automatic weighings from 1/10 mg to 100 mg, the results of which may be read on the magnified image of the scale which is projected onto a conveniently located screen.

In addition to the unique projection device, this balance features a new "floating" neoprene-cushioned black glass base plate to which no mechanism is mounted. With this arrangement breakage hazards are minimized, and a sturdy more rigid construction is achieved.

The model AB-1 is a double pan balance. Accordingly on a balance of this type it is possible to tare containers. Since it is recognized that in many weighing operations taring is an absolute necessity, a balance of the AB-1 type is desirable for most installations. In addition, this type of balance, although adapted for repetitive weighing, is ideal for routine laboratory work.

H-1843—Christian Becker Projectomatic Analytical Balance Each \$795.00

Specifications

Capacity—200 grams.

Beam—18.1 cm, of a special alloyed aluminum of great strength and uniform density. The beam is graduated left to right, 0 to 1 gram in 0.1 gram graduations (no weights below 1 gram required).

Projection System—the new Projectomatic makes possible automatic weighings from 1/10 mg to 100 mg. A vernier is provided for direct and positive reading to 0.1 mg. The zero of the screen is readily adjustable from outside the case.

Knife Edges—Agate. All knife edges are rigidly set in the beam.

Bearings—Agate Planes.

Releasing Mechanism—Beam Arrest. The special construction of the beam arrest insures the positive alignment of the agate edges with their respective bearings.

Damper—Magnetic damping arrests the oscillation of the beam almost immediately.

Rider Carrier—The enclosed vertical lift insures accurate alignment, in all positions, of lifting hook with the beam.

Pans—Stainless Steel, $2\frac{1}{8}$ in. diameter.

Bows—Brass, coated with a hard chemically resistant lacquer. Straight sides to accommodate large drying tubes, etc., $4\frac{1}{8}$ in. x $8\frac{1}{2}$ in. high.

Pan Arrest—The new independent pan arrest for pans with a positive stop.

Vibration Dampers—Special built-in dampers at each balance support dampen objectionable outside vibrations.

Sash Balance—The newly developed stainless sash balance for raising the front door eliminates the troublesome sash weights. The door opens wider, and more smoothly.

Case— $18\frac{1}{4}$ in. x 9 in. x 20 in. high. Aluminum with glass top and front panel and a removable back panel. The newly designed sliding front door, which actually comprises a portion of the side of the case, eliminates the objectionable conventional front corner posts. The case exterior is finished in an attractive chemically resistant finish. The interior is white to brighten working area. Case provided with a drawer.

HARSHAW SCIENTIFIC

DIVISION OF THE HARSHAW CHEMICAL CO.
CLEVELAND 6, OHIO

Cleveland 6, Ohio
1945 East 97th St.
Cincinnati 2, Ohio
224-226 Main St.
Detroit 28, Mich.
9240 Hubbell Ave.



Houston 11, Texas
6622 Supply Row
Los Angeles 17, Calif.
3237 S. Garfield Ave.
Philadelphia 48, Pa.
Jackson & Swanson Sts.

When inquiring check CP 7052 on handy form, pgs. 2-3

Would you like to receive CHEMICAL PROCESSING personally?

It will be sent to you
without charge or
obligation . . .

. . . if you qualify
. . . if you request it

If you are responsible for processing operations in an administrative capacity as plant superintendent, chemical engineer, chemist, engineer or equivalent responsibility . . . in a plant of substantial operations* where chemical processing is an important factor . . . CHEMICAL PROCESSING will be sent to you without charge or obligation if you request it. Use form below. In requesting, be sure to answer all questions. If your firm is not rated or listed in standard references, indicate size of the company by capacity, annual sales or number of employees. Unless all information is given, magazine will not be sent.

*"Substantial operations" does not necessarily mean an extremely large plant. But requests for the magazine exceed supply so we must get standards to insure publication being sent where it can be used to best advantage.

CHEMICAL PROCESSING
111 EAST DELAWARE PLACE
CHICAGO 11, ILLINOIS

Please send me CHEMICAL PROCESSING without charge or obligation

Name

Title

Company

Rating of Company

Street

City Zone

State

Main Products

PROCESS INSTRUMENTATION

**Sensitive to many variables,
relay guards circuit
or equipment . . .**

voltage, frequency, current, pressure, speed, weight, light, or other variables can be used

Uses: Type HRR Circuit Reclosing Relay is a protective device which automatically makes tests at specifically timed intervals. In conjunction with other equipment it can be used in checking voltage, frequency, current, pressure, speed, weight, light, or almost any measurable quantity.

Type HTI Miniature Time Delay Relay is used in electronic circuits or where an action in one circuit must initiate action in a second circuit at a later time.

Features:

Compact, reliable design meets requirements of Armed Forces.

Description:

Type HRR, in a typical application, might be used to check for a short circuit. Tests would be made at specified intervals if a short developed. If the short should be found to be cleared in any of the tests, circuits controlled by the relay would be returned to action and the relay itself would revert to its starting position. If the short were not cleared up in a specified period, however, the relay would lock out the control circuit until the short had been cleared manually. With proper auxiliary equipment, the relay can be made to function in the same manner for any of the quantities above, and others.

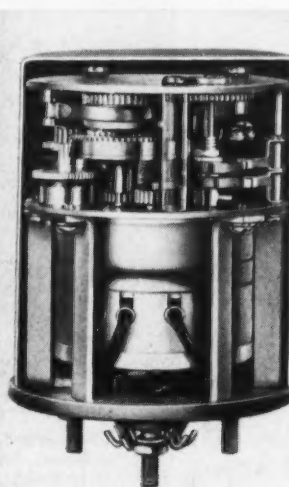
Type HTI embodies time delay only. Standard delays are 1/2, 1, 2, 5, 15, and 30 minutes. It is very similar in appearance to Type HRR.

Source: Developed by The R. W. Cramer Company, Inc., CP, Centerbrook, Conn. . . or for more information check CP 7054 on handy form, pages 2 and 3.

4th revised edition of manual gives gas-analysis methods

Theory, procedure and items of equipment are the general outline of this 60-page manual on gas-analysis for use with apparatus of the Orsat type. In presenting the theory, the manual lists various gases and then the most frequently used method for their removal. A section on preparation of apparatus gives instruction on cleaning, lubricating stopcocks, assembling equipment and filling the apparatus. Eight diagrams on the manipulation of straight-bore, three-way stopcocks illustrate the various directions of gas flow.

Opening remarks in section on procedure for analysis are concerned with sampling, transferring the sample to the apparatus, compensating, and measuring gas volumes. Fractional and slow combustion are additional topics discussed



Cutaway view of relay

below 800° F.

Accurate

**TEMPERATURE
READINGS**

in a few seconds . . .

XACTEMP

Low Temperature - General Purpose
HAND PYROMETER

Type LT-840
Low temperature
Xactemp Pyrometer
with rigid extension
arm and surface
tip thermocouple.

1001 USES

This is the answer to quick, accurate temperature readings below 800° F. in many industrial processes and operations. And it's so convenient to handle.

The Xactemp hand-type pyrometer, Model LT-840, is used with needle thermocouples, ribbon thermocouple, surface tip thermocouple, and other specially designed thermocouples and extension arms. These are easily interchangeable and, without adjustments or recalibration of the instrument, quickly ready it for measuring the surface temperature of stationary and revolving rolls and cylinders, flat and irregular surfaces of molds, dies, etc. in rubber and paper making, plastic materials, rubber, wax, oils, greases, and other semifluid materials.

Handy, compact design makes this Xactemp pyrometer ideal for field service, laboratory, and production-line use.

Price Xactemp Pyrometer less thermocouples . . . \$51.50

Write for detailed, descriptive literature on Gordon Xactemp Pyrometers.

**GORDON
SERVICE**

CLAUD S. GORDON CO.
Manufacturers & Distributors

Thermocouple Supplies • Industrial Furnaces & Ovens
Pyrometers & Controls • Metallurgical Testing Machines
Dept. 19 • 3000 South Wallace St., Chicago 16, Ill.
Dept. 19 • 2035 Hamilton Ave., Cleveland 14, Ohio

When inquiring check CP 7055
on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESS INSTRUMENTATION

here. References, composition of gases, handling difficulties, and special assemblies of gas-analysis apparatus are subjects discussed in the Addenda section. Remainder of manual details manufacturer's gas-analysis equipment. "Fisher Gas-Analysis Manual" is issued by the Fisher Scientific Co., Dept. CP, 717 Forbes St., Pittsburgh 19, Pa.

Indicates tension, weight or load from 500 lb to 25 tons up to 400 ft away . . .

12 v DC self-synchronous motors give $\pm 2\%$ accuracy at one or two repeater stations

Uses: Equipment was designed primarily for measurement of tension, weight, or tractive load.

Features: Present design uses oversized selsyn motors handling added torque with increased dependability. Accuracy of the equipment is plus or minus 2%.

Description: Sensing unit consists of a ball-bearing selsyn motor mounted on a dynamometer. This is connected by as much as 400 ft of rubber covered cable to a repeater selsyn in a cabinet with dial face and suitable calibration. System is placed in action by switching on

12 v battery power to the motor and repeater. Loads impressed on the dynamometer are instantly shown at the repeater.

Design allows various lengths of cable to be used interchangeably without affecting readings. Cable itself is 5-conductor with aircraft plugs. Current requirements are small and can be supplied by a 12 v battery.

Heavy gauge steel cabinet is 9 x 5 x 11-3/4" high and has 6-3/8" dial covered with lucite crystal. Both the cabinet and transmitter are protected against corrosion by a baked-on gray enamel.

Scales range from 0-500 to 0-50,000 lb in twelve steps. Accuracy of the readings are guaranteed at plus or minus 2%. Readings can be shown at two places, if desired, by using two repeaters connected to the same transmitter.

Source: Development of W. C. Dillon & Company, Inc., Dept. CP, 1421 South Circle Ave., Forest Park, Ill. . . . or for more information check CP 7056 on handy form, pages 2 and 3.

Oscillograph records 18 traces photographically at same time

Two-color, 16-page bulletin gives well-illustrated discussion of a recording oscillograph capable of simultaneously handling up to 18 separate static or high-frequency phenomena. Record speeds of 1/2 to 115 inches of film per minute can be used and timing lines are spaced every 1/100 second.

Text briefly describes application to measurement of strain, pressure, acceleration, and other phenomena at frequencies as high as 2000 cycles per second. Bulletin 1500B is issued by Consolidated Engineering Corporation, Dept. CP, 300 N. Sierra Madre Villa, Pasadena 8, Calif. When inquiring specify CP 7057 on handy form, pages 2 and 3.

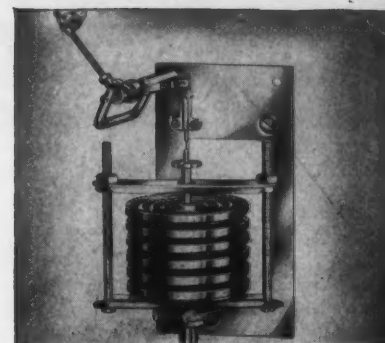
WHY ARE MORE BRISTOL RECORDING GAUGES BEING USED THAN ALL OTHERS COMBINED?

The heart of the pressure gauge is the pressure measuring element. Hundreds of thousands of Bristol recording gauges in use all over the world, operating under all kinds of conditions, testify to the high accuracy, long life, and permanent calibration of Bristol's element.

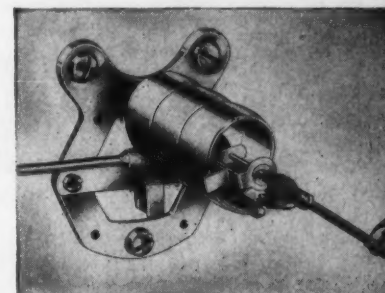
Many Bristol gauges have been in constant service for 20, 30 and 40 years!

Now Bristol presents its *new* line of Series 500 recording pressure gauges in ranges from 0 to 6 millimeters mercury absolute to 0 to 10,000 psi. They have many outstanding new features which make them easier to use, convenient to service, readily convertible. And they incorporate the three most advanced designs of measuring elements.

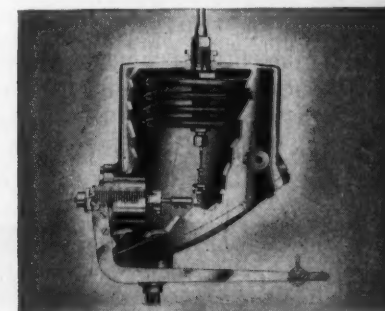
Models are available for recording, automatic controlling, pneumatic transmission and telemetering. Immediate delivery on many ranges. Write for new 32-page Catalog G621. THE BRISTOL COMPANY, 141 Bristol Road, Waterbury 20, Conn.



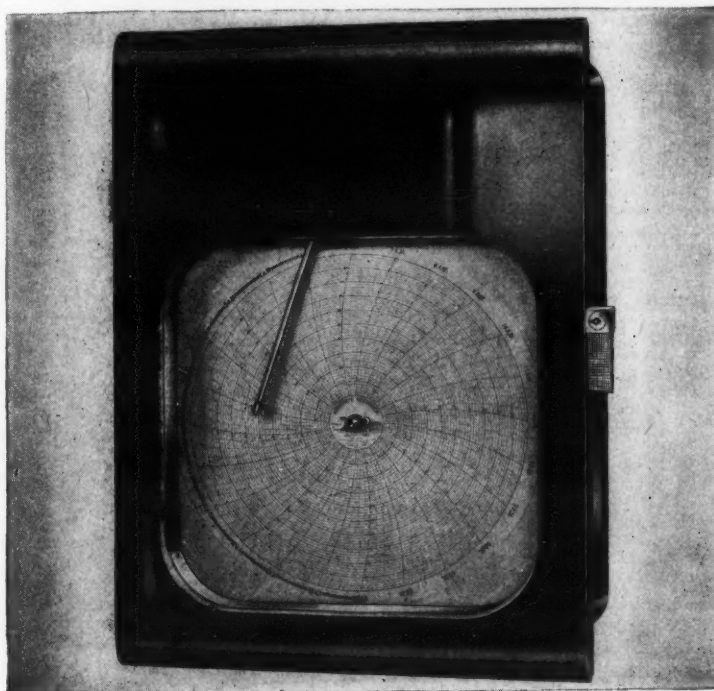
FOR LOW PRESSURE RANGES—new Type E measuring element is used for ranges from 0-2 in. water to 0-29.9 psi pressure or vacuum. Extremely high torque gives positive pen positioning across entire range. Highly accurate, extremely stable. 250% inherent over-range protection.



FOR INTERMEDIATE AND HIGH RANGES—new helical measuring element is for ranges from 0-30 psi to 0-10,000 psi. Special non-ferrous alloy—heat-treated to withstand impact of rapid fluctuations—gives permanent accuracy over a long period of service life.



FOR ABSOLUTE PRESSURE—new single-bellows type element measures ranges as low as 0-6 mm. mercury absolute and gives direct reading of pressure above absolute zero inherently corrected for barometric variations—with far greater accuracy than ever before.



BRISTOL

AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS

When inquiring check CP 7058 on handy form, pgs. 2-3

Bag Closing Machines for Every Need...



...from UNION SPECIAL'S
Complete Line!...

FOR lower production costs... stronger, neater closures... ability to get out rush orders in a hurry, you can't beat Union Special Bag Closing Machines! Specially built to stand up under heavy production schedules, these machines provide the high output rates needed to meet modern competitive conditions.

In the Union Special line, it's easy to find the right unit to meet your particular requirements: 25 different styles of machines! 10 styles of sewing heads! For any kind and size of bag—paper, cotton, burlap, or jute. ASK FOR RECOMMENDATIONS. *Illustrated Bulletin 200 will be sent on request.*

Ask for Recommendations

UNION SPECIAL MACHINE CO.

442 N. Franklin St., Chicago 10, Ill.

Gentlemen: Without obligating me, please furnish information on bag closing equipment to handle the following production:

Kind of bags used? _____

Filled weight of bag? _____

Material being packed? _____

Maximum number of bags per minute? _____

Check-weighing required after filling? _____

Conveyor required on Bag Closing Machine? _____

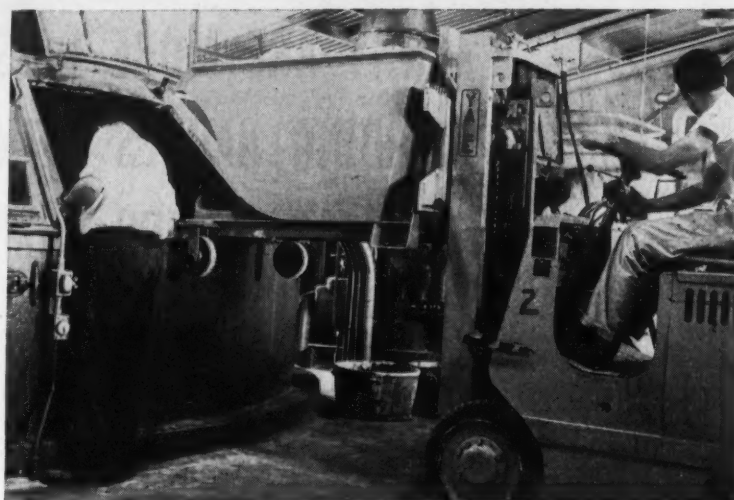
Power: ☐ D.C., ☐ A.C., Volts _____ Phase _____ Cycles _____

Name _____

Company _____

Address _____

When inquiring check CP 7059 on handy form, pgs. 2-3



Material Handling

Making final check before 1200 lb salt charge is dumped into 170,000 lb capacity soap kettle

Centrifugal recovery vital part of system that cuts cost of salt and its handling

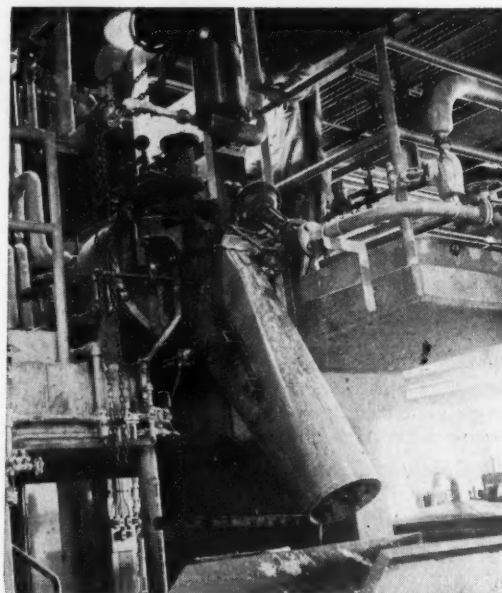
Reclamation of Soap Kettle Salt Put on Production-line Basis

PROBLEM: In the new Lever Bros. plant at Los Angeles, ten 170,000 lb soap kettles require charges of salt. Receipt, storage and distribution in proper charge to kettles and recovery of salt after use all demand use of modern handling methods.

Experience had indicated the importance of locating salt storage area immediately off the kettle section. Where long hauls are involved in recharging more trucks are required.

Solution: Incoming box cars are drawn up alongside the unloading dock directly below the salt storage area which is on the fourth floor. Salt is removed from cars with a scoop of 700 lb capacity which is rigged to a fork lift which is shuttled to elevators by dock crew. Elevator carries salt to fourth floor. There, horizontal conveyors transport the salt over the storage area. Salt is automatically discharged via four air-operated hydraulic gates. Each pile of salt, growing up under these discharge gates, equals approximately one carload, for a total storage capacity of four cars. So efficient is the unloading that a 101,000 lb boxcar can be emptied in from 1 to 1½ hours.

Hydraulic system, working at 100 psi, is controlled from a central station, with separate levers actuating each of the four gates. As kettle crews call for charges of salt,



Salt, reclaimed from slurry, is dumped into carts ready for pick-up and re-use in kettles

special 4-wheeled dump trucks are pushed to the salt piles and loaded manually. Each truck holds about 1200 lb of salt. When trucks are filled a 4000 lb Yale electric truck moves in, inserts its forks into special steel races built into each truck's underframe.

Truck and load are lifted and carried the short distance to kettle section. Dump trucks are then returned to the storage area.

After the soap is boiled and the kettle processing completed, salt and lye water are drained off. Evaporators remove the lye water, leaving a salt slurry. This is pumped back to the salt storage floor, where salt is separated from what water remains by a centrifuge. The centrifuge, housed in a steel structure off the storage floor, has space beneath for the dump trucks. These are lined up, awaiting

filling from centrifuge discharge. The centrifuge delivers 50 lb of salt every 45 seconds. Fork lifts again move in and carry the salt to the kettles.

Results: Reclaiming has drastically cut the need for new salt. Make-up salt is required only periodically to replenish exhausted supplies. Convenient location of salt storage area saves time and permits a minimum number of fork-lift trucks to handle peak volume of salt with ease. Recharge needs of the soap kettles are exactly met by capacity and design of the dump trucks.

CHEMICAL PROCESSING

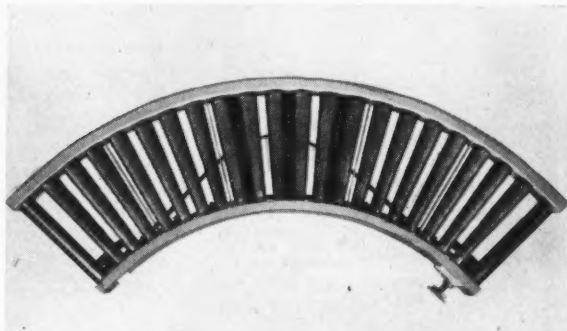
Taper rollers of power curve to avoid sideways movement, jamming of packages . . .

V-belt drive operates from individual motor or from adjacent conveyor; drive easily serviced

Uses: Designed to provide smooth, uninterrupted and safe movement of cases, boxes and other unit loads around 90° curves.

Features: Tapered roller bearings are used to provide package control that avoids skewing or jamming action. Simple V-belt drive is used for quiet, smooth operation. No oiling is required and drive can be removed without special tools or dismantling conveyor.

Description: Drive is powered by an individual motor (standard open frame, totally enclosed or ex-



Tapered roller curve driven by V-belt

plosion proof type) or from an adjacent conveyor. V-belt which provides friction drive to the lower side of the tapered rollers, rides in precision sheaves mounted to guide the belt around the arc of the curve. These sheaves, which have oilless bushings, are strategically placed so as to maintain pressure against the load rollers, assuring a positive drive. Tension of the belt is regulated by a tension adjustment.

Source: A-F 90° live roller conveyor curve is built by The Alvey-Ferguson Co., Dept. CP, 75 Disney St., Cincinnati 9, Ohio . . . or for more information check CP 7060 on handy form, pages 2 and 3.

Load range of 2000-4000 lb covered by 5 trucks . . .

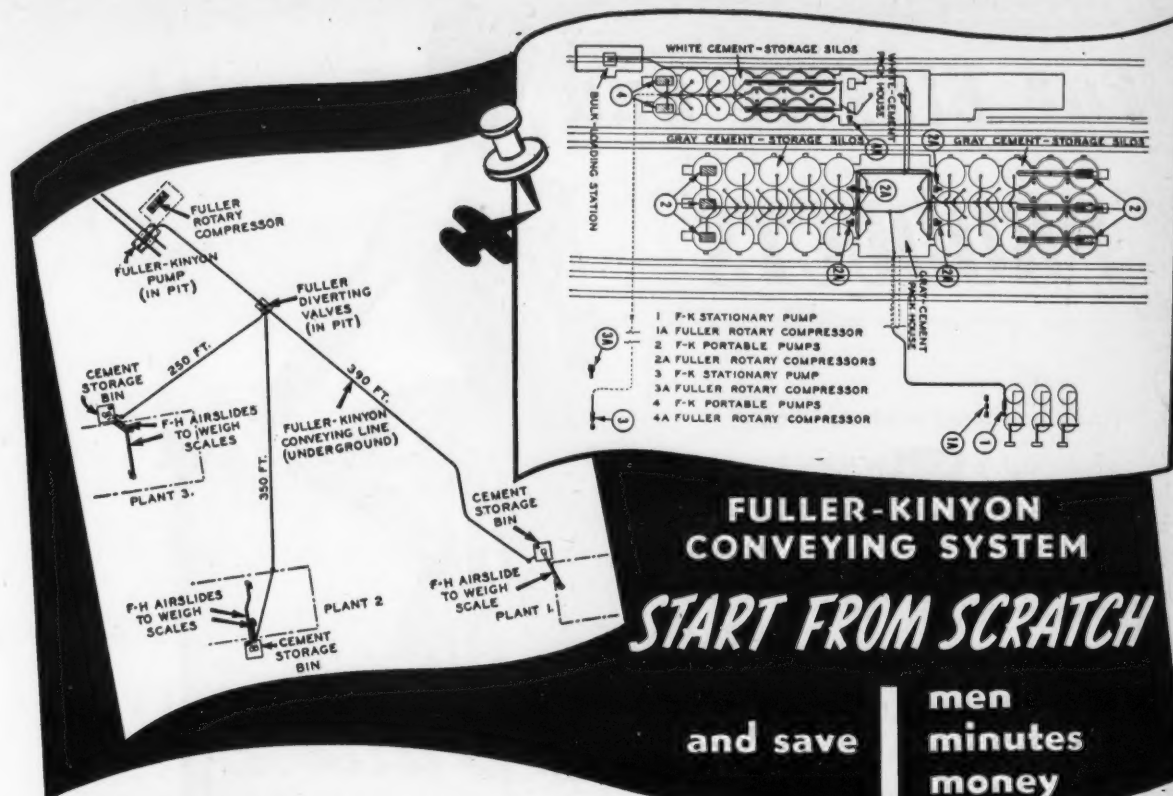
two models have pneumatic tires on all four wheels; short wheelbase of 3 models aids maneuverability

Uses: For wide range of handling operations applicable to fork trucks.

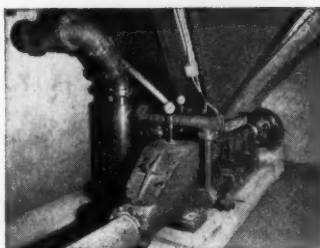
Features: Pneumatic tire equipment or cushion tires selected and designed to provide easy riding and handling qualities.

Description: Three of these five models replace models formerly produced. They have solid or cushion tires and a shorter wheelbase for greater maneuverability. The other two models have pneumatic tires on all wheels. The different models are respectively: Model 480-P, with 48" wheelbase and capacity of 4000 lb at 24" load center; Model 390 with 39" wheelbase and capacity of 3000 lb at 15" load center; Model 400-P, 40" wheelbase and a capacity of 2000 lb at 24" load center; Model 420, 42" wheelbase, capacity 4000 lb at 15" load center; Model 460, 46" wheelbase, capacity of 4000 lb at 24" load center.

Source: Towmotor Corp., Dept. CP, 1226 East 152nd St., Cleveland 10, Ohio. . . or for more information check CP 7061 on handy form, pages 2 & 3.



**FULLER-KINYON
CONVEYING SYSTEM**
START FROM SCRATCH
and save **men
minutes
money**



Fuller-Kinyon Stationary Pump conveying from bin.



Fuller-Kinyon Unloader unloading from box car.

The best way to solve any problems of conveying dry pulverized and granular materials is to "Start From Scratch". By that we mean, get all the facts on pneumatic conveying systems while you are still in the planning stage . . . either when building a new plant or modernizing an old one. Pneumatic conveyors permit economy and convenience in location of buildings and production equipment without the restrictions or straight-line limitations of mechanical conveyors. The layout of the conveying system can be designed to meet the specific requirements of the job, to conform exactly to local conditions, to insure minimum cost for erection, maintenance, and supervision.

Right there is where Fuller comes into the picture. As engineers and builders of four basic types of pneumatic conveying systems, Fuller is able to provide the exact system best suited to individual requirements.

Shown here is the Fuller-Kinyon System for conveying dry pulverized materials. It has many advantages: conveying pipe lines can be located anywhere—underground, suspended on simple hangers overhead, vertically, around corners, over long distances, and to practically any number of delivery points. There are no mechanical or explosion hazards. Conveying is clean, fast, and at minimum cost per ton of material handled.

We invite you to have Fuller Engineers make a complete survey and study of your plant plans—investigate local conditions and the material to be handled. Then they will make recommendations as to the system best adapted to your needs—enable you to save time, money, and material by having both plant and system built at the same time. To consult them places you under no obligation.

FULLER COMPANY, Catasauqua, Pa.

120 So. LaSalle St., Chicago 3

420 Chancery Bldg., San Francisco 4

Fuller

DRY MATERIAL CONVEYING SYSTEMS AND COOLERS —
COMPRESSORS AND VACUUM PUMPS —
FEEDERS, AND ASSOCIATED EQUIPMENT

When inquiring check CP 7062 on handy form, pgs. 2-3

For Elusive and Sensitive PRODUCTS

Finely powdered products will not sift through a **Fulton** W.P.P.L. Bag. Even moisture or outside vapors from gaseous materials will not penetrate the tough lining of paper or plastic that is laminated with adhesive to the inside of this sturdy bag.

Made of either cotton or burlap, **Fulton** W.P.P.L. (Waterproof Paper Lined) Bags are ideal containers for export or domestic shipments of hygroscopic materials, and products to be protected from outside influences. Many manufacturers who formerly used rigid containers are finding this tough, flexible, easier-to-handle textile bag a more advantageous and economical package for their products.

Investigation might prove it's the best container for your product. Just drop a line to the **Fulton** branch nearest you for full information.

Fulton BAG & COTTON MILLS

Atlanta • St. Louis • Dallas • Kansas City, Kans. • Denver
Minneapolis • New Orleans • Los Angeles • New York City

When inquiring check CP 7063 on handy form, pgs. 2-3



Growing constantly in popularity with industry's largest users of paper bags—**Fulton's** famous Multiwalls. All types—pasted or sewn bottom, open mouth or valve. **Fulton** makes the Multi-wall to fit your product!

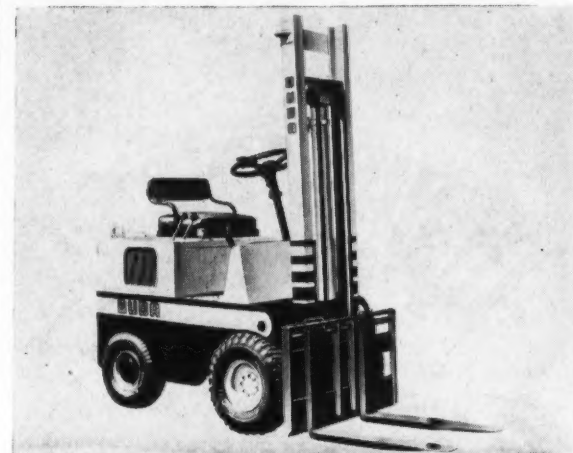
MATERIAL HANDLING

Carriage of this fork truck mounts on adjustable side thrust rollers . . .

quick adjustment made without using shims; trucks built in two models equipped with pneumatic tires

Uses: For services where handling of loads up to 2,000 lb by fork truck is required.

Features: Pneumatic tires all around cushion shocks, contribute to operator comfort, protect floors. Truck carriage is mounted on adjustable side thrust rollers to eliminate wear. Two forward and two reverse speeds



2,000-lb truck has overall length of 66 7/8"

are controlled by single lever. Complete compliment of gauges and switches are installed on full front vision instrument panel.

Description: Two models: FPB20-24 and FPB20-15, rated at 24 and 15" load centers respectively. Motor is 4-cylinder of 61 cubic inch displacement. Both models are available in five standard masts with a lift of 72, 84, 108, 114 and 120".

Source: The Buda Company, Dept. CP, Harvey, Ill. . . . or for more information check CP 7064 on handy form, pages 2 and 3.

Redesigned steering, engine accessibility for gas trucks . . .

new models emphasize easier operation, positive control

Uses: For unloading, loading, stacking, tiering and moving raw materials and finished products.

Features: Advanced design parking brake control. Replacing the hand brake used on previous models, it is located at the extreme corner of the floor board, clearing the center area of the floor plate to allow greater operator freedom. To remove hood and seat for access to engine, it is necessary only to remove radiator cap and air breather cap. For access to engine for simple adjustments, louvers on both sides hinge at the bottom and fold down to expose engine compartment.

Description: Redesigned double cylinder tilt system gives better upright stability with a smoother, more positive control of tilt. Cushion tires are used on all models and rubber torsional bushings at pivot mounting points.

An instrument panel is standard equipment and is

CHEMICAL PROCESSING

MATERIAL HANDLING

mounted for full visibility from the driver's seat. Recessed into dash is a "Protectorseal" gas cap; completely outside of engine compartment, it reduces fire hazard of spilled gasoline. Shockless steering is achieved by an Elliot-type axle, with the tie-rods designed to be more nearly in line with the forces they transmit, and relocation of steering knuckles as close to tire's dead-center shock point as practical. A quick-change clutch minimizes down time should changing of clutch become necessary.

Source: Redesigned Clipper trucks are built by Clark Equipment Co., Industrial Truck Div., Dept. CP, Battle Creek, Mich. . . or for more information check CP 7065 on handy form, pages 2 and 3.

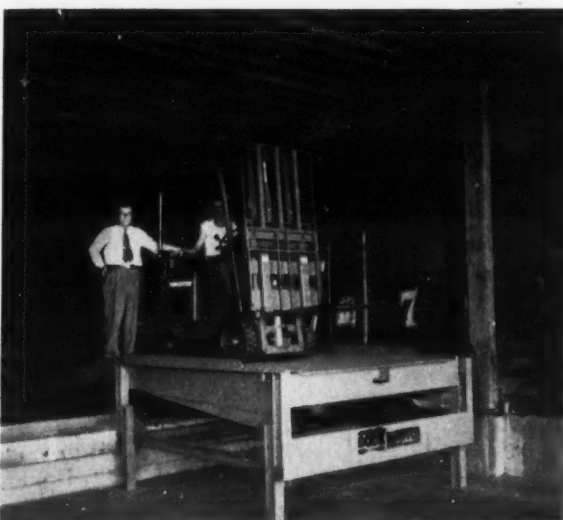
Equalizing level differences between low platforms and trucks, saves labor . . .

10-ton auxiliary unit with attaching approach ramp can be moved forward as required

Uses: To facilitate loading and unloading trucks at platforms that are unusually low. Permits use of fork truck where difference in platform and truck body height would prevent this method of handling loads.

Features: Unit is fully self-contained. No wiring or plumbing of any kind is required. There are no fixed arms or plates protruding beyond the forward end. Instead, an extendable and retractable gap-plate is incorporated into construction. When gap-plate is retracted, the front end of the unit is perfectly flush. This eliminates possibility of damage to truck or its load. After truck has been spotted, gap-plate is jacked forward as required.

Description: Hydraulic pressure is obtained through a double-acting hand pump. Rate of rise is approximately same as that for motor driven unit. Only a



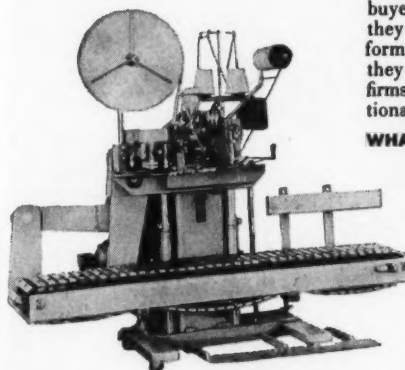
Ramp aids truck loading at low platforms by adjusting height difference

few strokes are required to raise it to its full up position. Capacity of unit is 10 tons.

Source: Model D Dockmaster is available from William Ehlers, Dept. CP, P. O. Box 495, Inglewood, Calif. . . or for more information check CP 7066 on handy form, pages 2 and 3.

OCTOBER, 1951

YOU'LL KNOW THE *Bagpaker*[®] BY THE COMPANIES IT KEEPS



These companies are repeat buyers of Bagpakers. Because they were pleased with the performance of the first Bagpakers they bought, every one of these firms bought one or more additional Bagpakers!

WHAT IS THE SECRET?

First, superior design and construction provide efficient, economical and trouble-free operation. Second, BAGPAK SERVICE assures continued operating efficiency.

That's why Bagpakers pay for themselves in a hurry—and then keep right on paying bonuses

in the form of better, more economical operation.

If you are considering the purchase of a new bag closing machine, then be sure to investigate the Bagpakers. Write today—ask for booklet No. 270P

Diamond Alkali Company
CLEVELAND

THE DOW CHEMICAL COMPANY
MIDLAND, MICHIGAN

B. F. GOODRICH CHEMICAL COMPANY
A DIVISION OF THE B. F. GOODRICH COMPANY
ROSE BUILDING
CLEVELAND 15, OHIO



LION OIL COMPANY
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MATHIESON CHEMICAL CORPORATION
MATHIESON BUILDING
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P.O. Box 504
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BAGPAK
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220 East 42nd St., New York 17

BAGPAK MULTI-WALL BAGS

BAG PACKAGING MACHINES

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IN CANADA: The Continental Paper Products, Ltd., Montreal, Ottawa.

When inquiring check CP 7067 on handy form, pgs. 2-3

THE BIG 89% TELLS YOU WHY A YALE ELECTRIC TRUCK IS YOUR BEST BUY

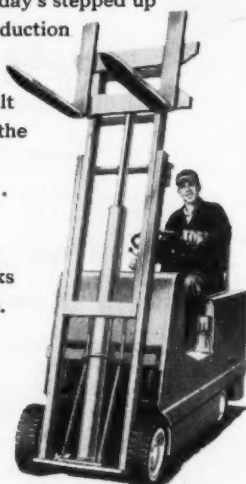
89% of the Yale Electric Trucks sold today are bought by previous users... so satisfied with Yale performance and Yale economy that Yale is their choice again.

• Seeing that extraordinary record — you'll say these must be extraordinary trucks. And they are!

They bring to your materials handling problems new shortcuts — new savings in man-hours — new opportunities to answer today's stepped up demands for increased production and faster deliveries.

Rugged Yale quality — built into every part — explains the service these trucks give even in the toughest jobs... even when working on round-the-clock schedules that would knock out trucks of less durable construction.

Ask for complete details about Yale Electric Trucks — and their industry-wide record of satisfied users.



YALE is a registered trade mark of the Yale & Towne Manufacturing Co.

SEND THIS COUPON TODAY

The Yale & Towne Manufacturing Co., Dept. 1210
Roosevelt Boulevard & Haldeman Ave., Philadelphia 15, Pa.
I am interested in cutting my materials handling costs.

- ☐ Please have your local representative call on me.
☐ Please send me free detailed literature.

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Company _____

Street _____ City _____ State _____

In Canada write: The Yale & Towne Mfg. Co., St. Catharines, Ontario

YALE & TOWNE

The Yale & Towne Manufacturing Co., Philadelphia 15, Pa.

YALE GAS AND ELECTRIC INDUSTRIAL TRUCKS • YALE WORKSAVERS
YALE HAND TRUCKS • YALE HAND AND ELECTRIC HOISTS

MATERIAL HANDLING

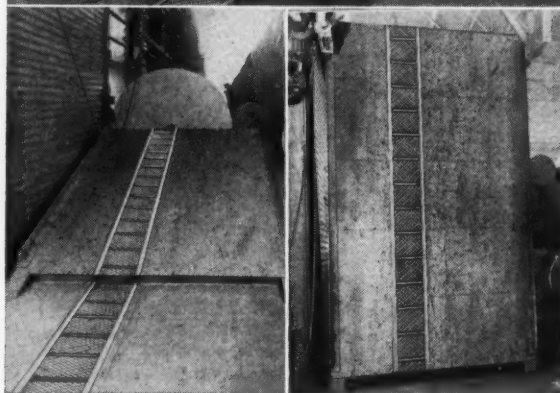
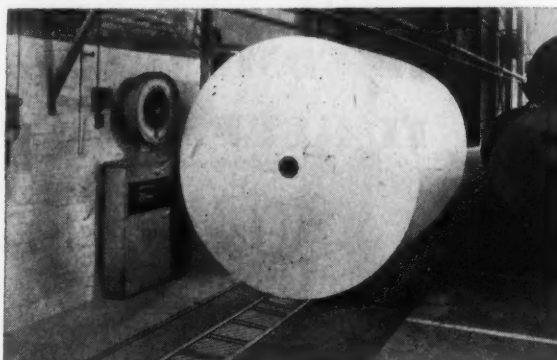
Heavy loads move at floor level over roller trackage system...

one man handles paper rolls, drums and vats or other loads to 4 tons, with speed and safety

Uses: For rapid, easy movement of paper rolls, drums and vats of chemicals. Loads can travel along straight trackage and turn on turntables to change direction.

Features: One man, by manual effort alone, easily and safely transports heavy loads at floor level. No lifting is required to get heavy cylindrical loads on and off track at any point desired. Where paper rolls are handled, damage to the outer surfaces is practically eliminated. Trackage may be installed in any type of flooring and never requires more than 4" foundation. Hand and power trucks can cross over without damage to trackage. Sections are not interlocked and can be lifted out of trench for inspection and cleaning. Rollers revolve on sealed ball bearings.

Description: Standard track sections are straight and 10' long. Other lengths are supplied when necessary to



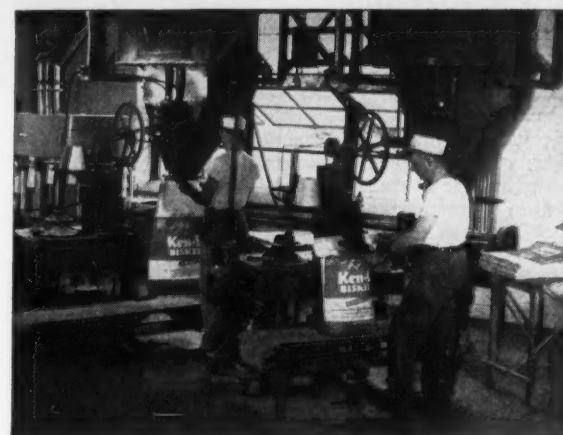
Trackage system built right into floor scale
Drawbridge with trackage, raises for box cars

complete required transporting distances. Track rollers are seamless steel tubing. Track is supplied in size and capacity to meet requirements.

Turntables are all-steel, welded construction rotating on inner and outer ball bearing mountings. They can be stopped at any degree, although 90° is standard.

Top illustration shows an unusual scale installation. This makes it possible for paper rolls to be moved right onto scale and weighed before going to roll stand or storeroom.

Another installation that demonstrates versatility of this system is that shown in two lower views. Here, trackage runs right over a drawbridge that connects two



RICHARDSON

BAGGING EQUIPMENT WORKS FOR

QUAKER OATS

In recent years, the nation's canine population has developed a voracious appetite for the well-known dry dog food, Ken-L-Biskit. Production soared and with it the need for a more rapid bagging system. Quaker Oats called in the Richardson Scale Company—specialists in materials-handling-by-weight. They recommended and installed a battery of Richardson E-50 Baggers. Result: A potential bottle-neck was eliminated and Fido was kept happy with plenty of Ken-L-Biskits.

This is just one of many instances where Richardson's 50 years of materials-handling-by-weight experience have proved valuable. Experience with materials from seed to feed and coal to chemicals enables Richardson engineers to recommend the best system or combination of systems to solve your particular problem. Remember, Richardson engineers have successfully solved numerous materials-handling-by-weight problems such as yours. A survey of your problem places you under no obligation, and can point the way to more profitable operation.

PROBLEM:

To bag rapidly and efficiently 25- and 50-lb. lots of Ken-L-Biskit. Weight of individual bags to be held to close tolerances.

SOLUTION:

Installation of a number of Richardson E-50 Baggers. Speed and dependability were illustrated by the tremendous yearly output that passed through these scales, enough to fill completely a train more than 10 miles long.

For information on Richardson Automatic Weighing Equipment, ask for Bulletin No. 0450. For information on Richardson Proportioning, Blending, and Process Control Equipment, ask for Bulletin No. 0550.

Richardson Scale Co., Clifton, New Jersey. Feeder-Weigher Systems of All Types: Automatic Bulk Weighing Hopper Scales, Including Conveyor-Feed Types — Continuous Feeder-Weighers—Automatic Bagging Scales — Bag-Sewing Conveyors — Packers — Process Control Panels. Branch offices in: Atlanta • Boston • Detroit • Minneapolis • Cincinnati • Wichita • Montreal • Omaha • New York • Pittsburgh • San Francisco • Toronto • Buffalo • Chicago • Philadelphia • and Houston.

Richardson

MATERIALS HANDLING BY WEIGHT SINCE 1902

7872

When inquiring check CP 7069 on handy form, pgs. 2-3

CHEMICAL PROCESSING

When inquiring check CP 7068 on handy form, pgs. 2-3

MATERIAL HANDLING

loading platforms. Drawbridge can be raised to allow freight cars to back in.

Dollies are essential units of the trackage system and carry the loads over the trackage rollers. They are designed to suit specific types of loads. Curved track can be furnished for certain operating conditions. Straight trackage can be furnished, motorized.

Source: Epco traction system is built by Engineering Products Co., Inc., Dept. CP, 122 South Michigan Ave., Chicago 3, Ill. . . . or for more information check CP 7070 on handy form, pages 2 and 3.

Only three units required to assemble gravity conveyor system . . .

balanced rollers rotate on full length, cold rolled steel shafts; trestles are adjustable

Uses: For transporting and handling unit loads.

Features: Conveyors are designed to meet almost all installation requirements with only three units: straight sections, 90° curved sections, and adjustable trestles.

Description: Balanced rollers rotate on full length cold rolled steel shafts fitted with ball bearings. Shafts retain alignment and cross channels prevent frame from spreading under heavy loads. Rollers are spaced on



Three-unit roller conveyor system

4" centers for maximum bearing surface and are raised $\frac{3}{8}$ " above frame to accommodate packages wider than conveyor.

Source: Lyon Metal Products, Inc., Dept. CP, Aurora, Ill. . . . or for more information check CP 7071 on handy form, pages 2 and 3.

Lists capacities of platform and fork trucks

Condensed, 12-page catalog is divided into four sections covering high lift and low lift platform trucks and mobile cranes. It lists capacities and dimensional specifications on each class of truck manufactured by the company and gives a brief description of major construction features. Several material handling ideas are also presented in picture form. "General Catalog" is issued by The Elwell-Parker Electric Co., Dept. CP, 4205 St. Clair Ave., Cleveland 3, Ohio. When inquiring specify CP 7072 on handy form, pages 2 and 3.

OCTOBER, 1951

CONTINENTAL STEEL CONTAINERS

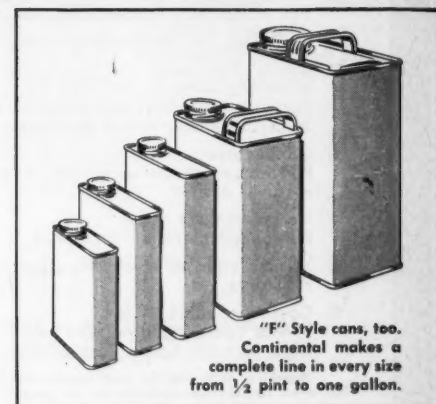
are built to take it!



Continental steel containers are not only good looking, but are built to take it. They protect your products en route, take rough handling in stride and arrive at their destination bright, tight, and beaming sales appeal.

Here's another feature: Continental's master lithographers have the skill and experience it takes to make your trademark and sales message the center of attraction—and by faithful reproduction of design, make steel containers part of your package "family."

Give your products the protection and sales appeal of a Continental steel container. Call on your Continental representative today. He'll be glad to give you all the facts you need.



You can't beat Continental as a dependable source of supply!

CONTINENTAL © CAN COMPANY

CONTINENTAL CAN BUILDING

100 East 42nd Street

New York 17, N. Y.

Eastern Division: 100 East 42nd Street, New York 17 • Central Division: 135 So. La Salle Street, Chicago 3 • Pacific Division: Russ Building, San Francisco 4

When inquiring check CP 7073 on handy form, pgs. 2-3

**Wearing Parts Made
in Many Different Alloys
for Various Chemical Services**

MORRIS TYPE R SLURRY PUMP

WHETHER it's handling a slurry that is highly abrasive only — or one that is highly abrasive and corrosive — it is easy to get just what you need in a Morris Pump. The reason: Morris Type R wearing parts are furnished in various alloys, determined after long experience for particular services.

Here are a few typical examples of "just the right metal for the job" —

- ✓ Morris laboratory-controlled semi-steel. Economical metal for moderately abrasive solids.
- ✓ Three per cent nickel semi-steel or 3% nickel gray iron. For moderately concentrated caustic slurries.
- ✓ Ni-Resist, for more highly concentrated caustic slurries.
- ✓ Morris Flintmetal "S", a hard, straight, high chrome iron, brinelling between 600 and 700. For added corrosion and abrasion resistance to slurries containing traces of sulphuric and sulphurous acid.
- ✓ Carbon steel. For fine materials and high heads, or where an easily welded metal is desired.
- ✓ Various bronze alloys. For added corrosion resistance.
- ✓ Various stainless steel alloys. For extreme corrosion and abrasion resistance.
- ✓ Cast iron, rubber lined. Where operating conditions are right for this construction and when suitable rubber is available.

Handling both liquids and slurries of great variety by centrifugal pumps, has been the Morris specialty for 87 years. Write us for further information on materials, design specifications and operational data on pumps best suited to your particular needs. No charge or obligation.

MORRIS MACHINE WORKS, Baldwinsville, N. Y.
Sales Offices in Principal Cities

MORRIS

CENTRIFUGAL PUMPS

When inquiring check CP 7074 on handy form, pgs. 2-3

MATERIAL HANDLING

**Service accessibility,
light weight add to
hoist efficiency . . .**

spur-gear units made in capacities of ½ and 1-ton

Uses: Designed for handling loads in ½ and 1-ton capacities respectively.

Features: Ease of servicing, hoist being built so that it may be disassembled with simple tools in a few minutes. Design is said to make hoist hang true whether it is supporting load or not.

To provide strength and unusual resistance to shock load breakage, formed steel plate is used in housing in place of the more common cast aluminum alloy. Back plate is laminated to give extra rigidity for supporting hoist mechanism.

Plate and all other load holding parts are of high strength steel selected to hold 5 times the rated capacity of the hoist.

Description: Entire unit, including standard length of high-strength coil chain for an 8' lift, weighs only 39½ lb.

Source: Challenger hoists in ½ and 1-ton capacities are built by Coffing Hoists Co., Dept. CP, 800 Walter St., Danville, Ill. . . or for more information check CP 7075 on handy form, pages 2 and 3.

Job study shows 60% cut in handling costs

This 4-page publication is a job study report of work performed by manufacturer's lift trucks and tractors in a castings plant. A 60% cut in overall material handling costs is reported through use of ten lift trucks and one tractor. Report is presented in "problem and solution" form with a review of operations in six different departments.

Savings are pointed out as having accrued in the following manner: annealing department — 20% savings in floor space, 50% savings in man hours and 25% increase in speed in pouring castings into annealing pots; shipping department — 300% increase in fittings handled per man; and, blank storage department — 200% better use of floor storage space effected in this manner.

Photographs demonstrate equipment in action. Job Study 108 is issued by Towmotor Corp., Dept. CP, 1226 E. 152nd St., Cleveland 10, Ohio. When inquiring specify CP 7076 on handy form, pages 2 and 3.

BAKER TRUCKS
require
LESS MAINTENANCE

to you this means

- LESS TIME OUT OF SERVICE
- TOP OPERATING EFFICIENCY
- LOWER OVERALL COST

Baker Trucks are built to give maximum trouble-free service, and designed for easier preventive maintenance and less costly repairs.



Electric dynamic braking saves wear on brake linings and protects truck parts. Service brakes can be adjusted in 5 min., and relined in 30 min.

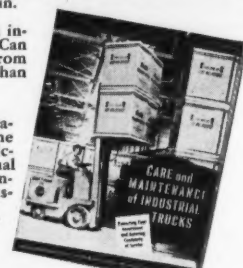
Power Axle has fewer moving parts and is less subject to wear. Mast assembly can be removed in 20 min. and power axle pulled in 40 min.



Trailing Axle is the simplest in use on industrial trucks. Can be removed from truck in less than 20 minutes.



These 3 illustrations are from the new 16-page picture-story manual "Care and Maintenance of Industrial Trucks." Write for your copy today.



BAKER INDUSTRIAL TRUCK DIVISION of The Baker-Rauland Company
1208 West 80th Street, Cleveland 2, Ohio

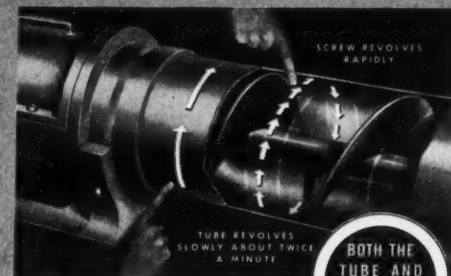
Baker INDUSTRIAL TRUCKS

When inquiring check CP 7077 on handy form, pgs. 2-3

Screw-Flo

TRADE MARK REG. U. S. PAT. OFF.

THE ONLY SANITARY SCREW CONVEYOR



**BOTH THE
TUBE AND
THE SCREW
REVOLVE**

Nothing can remain within the system. Everything is conveyed out. Totally enclosed . . . there is no leakage . . . no dusting . . . no infestation.

Screw-Flo is precision built in standard sections . . . operates noiselessly. Can be had in any length with feeds and discharges to suit your layout. The greatest achievement in bulk material conveying.

Write for Form No. M-700-2 to outline your problem

Screw Conveyor Corporation
699 HOFFMAN ST. HAMMOND, IND.
ENGINEERS MANUFACTURERS
TRADE MARK REG. PRODUCTS U. S. PAT. OFFICE

When inquiring check CP 7078 on handy form, pgs. 2-3

CHEMICAL PROCESSING

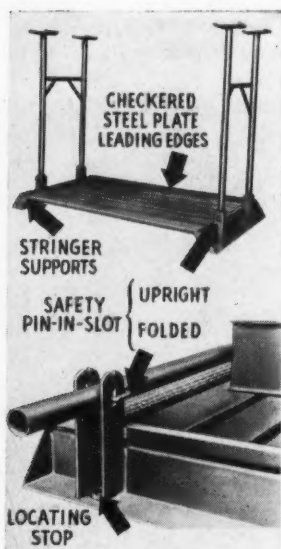
MATERIAL HANDLING

Safe tiering of fragile or odd-shaped items with steel pallet . . .

self-contained locking device assures vertical rigidity of standards

Uses: This all-steel pallet with self-contained collapsible stacking attachment is used for the safe tiering of fragile, irregular, odd-shaped or mixed merchandise.

Features: A safety pin-in-slot arrangement allows the standards to be set up quickly by one person. When erect, the lower ends of the standards rest over raised locating stops on the stringers to assure positive locking.



Single unit in both erect and collapsed positions

Description: Manufactured in several sizes for bulk and heights, the unit has a capacity of 4000 lb, with a stacked static capacity of 20,000 lb. In the erect position, bearing safety plates on top of the standards secure the units, placed one above the other. When not in use, the supporting standards fold across the top of the pallet for compact storage in a minimum amount of space. Rigidity of the stringers is brought about through the addition of corner supports which are welded to the horizontal and vertical

ends of the stringers. An innovation over the previous design in the deck pallet surface are the non-slip, checkered steel plate leading edges.

Source: "Multi-Stak" Pallet Stacker Unit is manufactured by Elizabeth Iron Works, Inc., Dept. CP, Box 360, Elizabeth B, N. J. . . or for more information check CP 7079 on handy form, pages 2 and 3.

Tells of single circuit battery charger

Illustrated with cut-away view photographs of the equipment, the bulletin stresses the ease and fully automatic operation of the charger. Points out that use of this equipment in charging batteries of motorized lift trucks by the operator in the work area, rather than at a central area, effects savings in man-hours and costs. In addition, requires no manual control during the charge, since the charging current begins at the proper value and is controlled throughout at rates prescribed by the battery manufacturer.

Equipment shuts down in case of power failure and when battery is fully charged. A table for lead-acid batteries shows type charger to be used, along with such specifications as ampere-hour capacity; charging-time, hours; motor horsepower; and, weight, pounds. Another table covers Edison batteries.

Bulletin 11-210 is issued by The Electric Products Co., Dept. CP, 1725 Clarkstone Road, Cleveland 12, Ohio. When inquiring specify CP 7080 on handy form, pages 2 and 3.



THE ALL-CRINKLED MULTIWALL BAG

Chase Sharkcraft sharply reduces costly breakage . . . it is, indeed, **BUILT TO TAKE IT!** Available in 2 to 5 plies of extra strong crinkled kraft. Furthermore, it provides a sure grip . . . it's easier to handle and stack, and you'll like the sharp, colorful printing of this better container.

Get full details on Chase Sharkcraft from your Chase Salesman—and be sure of the most efficient container for your product. He is supported by more than 100 years of experience in providing better bags for American industry and agriculture.

**CUTS COSTLY
BREAKAGE
IN THE
PACKAGING OF...**

- Farm Products
- Powdered Milk
- Mineral Concentrates
- Seeds • Chemicals
- Pharmaceuticals
- Fertilizers
- Rock Products
- Meat Scraps and Tankage
- Starch Products



Bags for All Industry and Agriculture

- cotton bags of all kinds
- Topmill burlap bags
- Saxolin open mesh bags
- paper and Multiwall bags
- combination bags, liners and specialties



Check with your Chase salesman
or mail this coupon TODAY!

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Gentlemen: Please send me more information about SHARKCRAFT bags

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OKLAHOMA CITY • PORTLAND, ORE. • REIDSVILLE, N. C. • HARLINGEN, TEXAS • CHAGRIN FALLS, O. • WORCESTER, MASS. • CROSSETT, ARK. • SAN FRANCISCO

When inquiring check CP 7081 on handy form, pgs. 2-3



pointers

**BETTER
PROCESSING**

EQUIPMENT INFORMATION FOR PROCESSING PLANTS

Streamlined Materials Handling of Bulk Chemicals

For years calcium carbide, used in acetylene and synthetics, was shipped in 1000 lb. steel drums. Loading a shipment of carbide was slow, arduous work, eating up plenty of man-hours. Depreciation on drums due to rough handling was especially high. And, loss through spillage was an evil accepted by both manufacturer and consumer.

The growing demand for carbide by large industrial users necessitated a more efficient, economical method of handling carbide in bulk.



For further information about this equipment write to Sprout, Waldron & Co., Inc., 10 Waldron St., Muncy, Pa.

The SOLUTION: A five-ton capacity, all-steel, air-tight portable container which discharges directly to the acetylene generator. Units can be nested by the dozen on flat cars or loaded on trucks in sets of three.

RESULT: Each container holds 10 times more carbide...is filled, sealed, and moved mechanically with lowest costs ever!

Sprout-Waldron built over 2500 of these specially designed containers. Why not take advantage of this wealth of experience? We can also help you cut corners in the moving of bulk chemicals.

Sprout-Waldron

Manufacturing Engineers

SINCE 1885
MUNCY • PENNSYLVANIA



SIZE REDUCTION

MIXING & BLENDING

BULK MATERIALS HANDLING

PRODUCT CLASSIFICATION

PELLETIZING & CUBING

When inquiring check CP 7082 on handy form, pgs. 2-3

MATERIAL HANDLING

**Trucks operate 7 days every week;
20 hours a day; treble material
flow; cut labor one-half . . .**

fleet of 49 gas and electric units speeds plant's entire production and storage activity

Problem: Sacked materials such as polyethylene resins and woodflour, as well as such processed products as wrapped rolls of polyethylene sheeting, must be handled at the Bound Brook, N. J., plant of Bakelite Company, Division of Union Carbide and Carbon Corp. Originally, some 40 men were required to take care of receipt, storage, movement to processing points and loading of finished products for shipment.

Dependence on manual methods slowed progress of both handling and production operations, subjected workers to strain of lifting heavy loads and hazard of toppling loads. Manhours, in proportion to amount of material handled, were too high to be economical. Also, tying



Truck-pallet method enables crew of three men to unload box car in 80 minutes

to near ceiling heights could not be achieved. Yard storage operations provided another instance where manual or semi-mechanized methods fell short of doing a satisfactory job. All these factors increased costs, decreased worker efficiency and slowed production.

Solution: As the first step in mechanizing material handling, the plant put a number of industrial trucks, both gas and electric, into service. Moving materials in unit loads on pallets is now the general practice. Some trucks are used for intra-process handling. Others tier or move pallet loads in warehousing within plant buildings. Trucks also eliminate manual handling in yard operations, and in loading shipments into box cars and highway trailers. Palletized shipments are limited, however, to destinations where suitable lift equipment is available.

Even where bags, cases or other containers must be manually loaded because of lack of handling equipment at the other end, pallets are used to speed movement of materials to actual point of loading. There, pallet loads that are to be transferred manually into trailers are placed on top of portable roller platforms in the trailer. To avoid compelling the crews to stoop in removing the

CHEMICAL PROCESSING

MATERIAL HANDLING

bags, several empty pallets are generally placed on the platform, with the palletized load on top of them.

The company now operates a fleet of 49 trucks seven days a week on an average of about 20 hours a day and is adding four more units. Nine of the fleet are used in production lines, and for intra-process handling. Others are used in warehousing operations within plant buildings and in yard storage service. Nearly every item is palletized, while some 10% of incoming material arrives on pallets.

Nearly all pallets are of two-way, double-faced, wooden construction. However, an experiment is being carried on with shipments of some products in expendable



Cartons, bags and drums all handled, tiered easily in finished goods warehouse

box or case-type pallets of heavy kraft board. Rolls of plastic safety glass interlayer, one of the items produced at the Bound Brook plant, are packed in these containers.

Trucks embody an added measure of safety for employees in the overhead guards on all trucks. Operators are protected from injury from objects that might fall.

Results: Reduction, by almost half, of man power assigned to material handling, releasing experienced workers for service elsewhere in the plant. More material is now handled in the established work period. Storage space is utilized to greater advantage as materials can be tiered to greater heights with ease and safety. Entire production flow has been speeded up.

Source: Industrial Truck Association, Dept. CP, Beury Bldg., 3701 N. Broad St., Philadelphia 40, Pa. . . or for more information check CP 7083 on handy form, pages 2 and 3.

Lists strapping equip and products

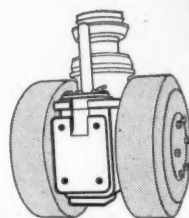
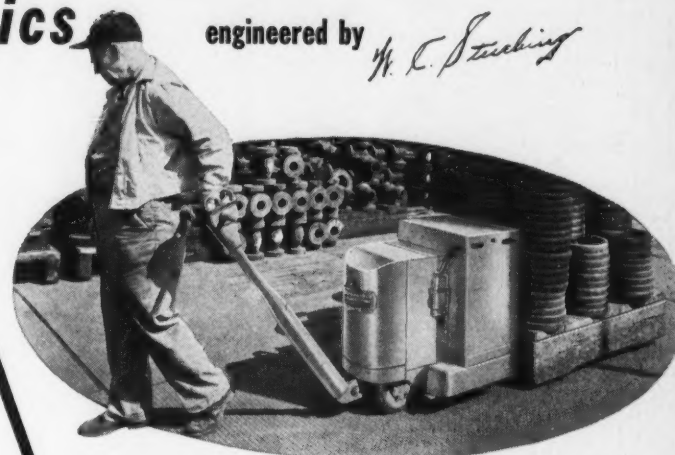
Six-page folder describes products and equipment for banding all types of packages, bales, boxes, bundles, and pallets. Specifications on strapping show a tensile strength (pull test) of 565 lb for $\frac{3}{8}$ " wide and 0.015" thick strapping to 11,000 lb for the 2" wide and 0.050" thick product. The recorded tensile strengths are subject to a $\pm 10\%$ variation. Illustrations show two models of wagons for carrying strapping. Light, medium and heavy duty sealers and tensioners are other items detailed. "Steelband" is issued by Allegheny Steel Band Co., Dept. CP, P.O. Box 716, Pittsburgh 30, Pa. When inquiring specify CP 7084 on handy form, pages 2 and 3.

OCTOBER, 1951

7 reasons why America's leading firms select HydroElectrics

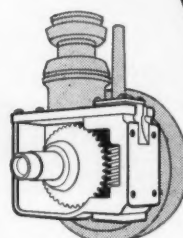
engineered by *H. E. Stuebing*

Why do large and small users of the HydroElectric lift truck report these Stuebing-built trucks save them money . . . last up to four times longer? Here are seven reasons mentioned again and again . . . no other truck gives them all!



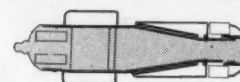
1.

True Differential Drive
... no chains—complete reliability!



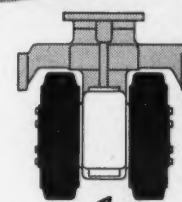
2.

Lifetime Transmission
... sealed in lubricant—no maintenance!



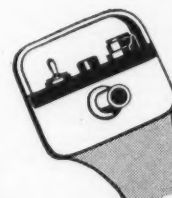
3.

Rugged Construction
... built to last longer, where the going is toughest!



4.

Twin Drive Wheels...
50% easier steering, far better traction!



5.

Four-Wheel Stability
... greater safety for operator and load!



6.

Greater Safety...
brake operates instantly, with handle in any position!



7.

Trouble-free "Power Package" ... compact, quickly accessible!

Put the HydroElectric to work in your plant. We'll gladly send descriptive literature. Write for Bulletin "H".

Lift Trucks
INCORPORATED

2425 SPRING GROVE AVENUE, CINCINNATI 14, OHIO

When inquiring check CP 7085 on handy form, pgs. 2-3

**Engineering and Research
Make the Difference**

CORRUGATED AND SOLID
FIBRE BOXES
FOLDING CARTONS
KRAFT BAGS AND SACKS
KRAFT PAPER AND SPECIALTIES



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Appleton • Hickory • Greensboro • Sumter • Jackson • Miami • Omaha • Mobile • Dallas • Little Rock • Charlotte • Cleveland

It's the
unseen
quality
that produces
true economy
in Gaylord
Boxes

All shipping containers of corrugated or solid fibre look very much alike before they're shipped. The appearance and condition of the merchandise when it reaches the final destination tell the story of true packaging economy.

The creative research and special engineering devoted to each type of container by Gaylord specialists assure better protection for all products traveling in Gaylord Boxes.

Call the Gaylord Sales Office nearest you for prompt packaging service.

GAYLORD CONTAINER CORPORATION

General Offices: **ST. LOUIS**

MATERIAL HANDLING

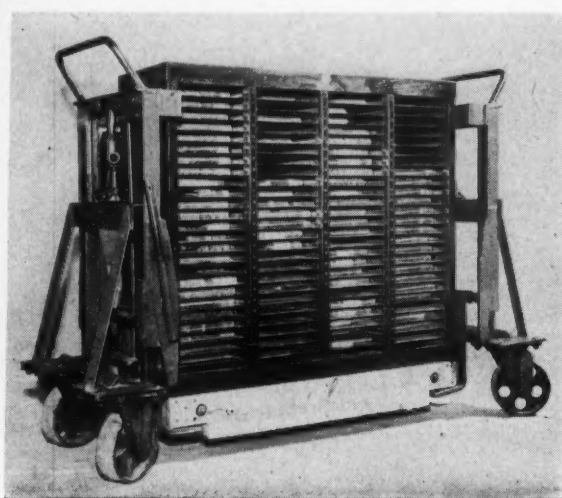
**With two 2-wheeled units,
any crate or rigid load
is mobile . . .**

portable manual lift devices get to hard-to-reach corners

Uses: Devices are used in pairs for moving crates, machinery, cabinets, etc.

Features: Using this device, two men can handle loads weighing several tons. Full swivel action of wheels makes it possible to push load flush against wall.

Description: The Rol-A-Lift consists of a frame with two wheels which carries forks and a mechanical or hydraulic lifting device. In use, one unit is applied to each end of the load to be handled. The load is lifted with the forks and lifting device and then locked at the



Heavy load supported on detachable wheeled lifts

desired height. The crate or load can be pushed manually. No part of the lift protrudes past the sides of average width loads and the lift device itself is not bulky. Its small size combined with the maneuverability of full swivel wheels makes it possible to push loads through narrow aisles, or flush against walls.

Source: A product of Skarnes Engineering and Supply, Inc., Dept. CP, Minneapolis 6, Minn. . . or for more information check CP 7086 on handy form, pages 2 and 3.

**Short hauls, load spotting handled
by hydraulic pallet trucks
in one man operation . . .**

complete hydraulic lifting and lowering so that it takes as many strokes as desired to lift the load

Uses: Two trucks described are particularly suited as auxiliary pieces of equipment for power operated trucks — to take care of short hauls, load spotting and general placing of pallets.

Features: Manufacturer's models EX and ET have a totally enclosed pump and ram unit vertically mounted to assure minimum friction and load pressures. Pump unit is easily replaced to change number of handle strokes or handle effort. Adjustable speed control valve assures exact lowering speed desired.

Description: Model EX is a pallet lift-truck for han-

CHEMICAL PROCESSING

HERCULES CARBOY BOXES

give you
**EXTRA
PROTECTION**

**6 1/2
GALLONS**



Completely enclosed wooden carboy box complying with I.C.C. I-D regulations for transporting mineral acids. Convenient corner posts allow one man to handle carboy and flat top provides for compact storage. Designed with interchangeable cork (Hercules) or rubber cushion (Aero) inserts and cushions.

SPECIFICATIONS

BOX SIZE: 13 3/4" x 13 3/4" x 22" including hood (I.D.)

WEIGHT: Approx. 26 lbs. (Box)
Approx. 14 lbs. (Bottle)

CARBOY: 6 1/2 gals. normal capacity (17 gals. overflow)

COMPLIES WITH CLASSIFICATION
I.C.C. I-D.

**PROMPT
DELIVERY**

Carboys also supplied in 13 gal., 5 gal. and other capacities.

**NATIONAL
BOX & LUMBER COMPANY**

NEWARK 5, NEW JERSEY



When inquiring check CP 7087 on handy form, pgs. 2-3

MATERIAL HANDLING

ding single or double faced pallets and is built in five fork lengths: 36, 42, 48, 54 and 60". Three capacities are available: 2500, 4000, and 6000 lb. A 14" distance from front of truck to platform enables truck to make turns with very short radius.

The other hydraulic lift truck, model ET, has a capacity of 4000 lb and carrying frame length of either 24 or 30". Designed for handling single face pallet loads of small area, the truck has a lift of 4", the same as with the model EX.

Source: Models EX and ET pallet lift-trucks are built by Barrett-Cravens Company, Dept. CP, 4613 S. Western Blvd., Chicago 9, Ill. . . or for more information check CP 7088 on handy form, pages 2 and 3.

Dual clamp picks up two crates at once; truck then tiers them to height of 17' . . .

hydraulic accessory available on both electric and gas powered lift trucks for max load of 900 lb

Uses: For industrial lift trucks to facilitate tiering large crates and boxes. Especially serviceable in loading freight cars.

Features: Attachment handles two objects up to 75" high and 36" wide each, and stacks them 17' high simultaneously. Maximum total weight of the dual load may be 900 lb. Hydraulic side shifter of truck,



Tiering 2 crates weighing 450 lb each

on which this attachment is used, permits load and clamp to be shifted 4" to either side of center. This permits close, accurate spotting of load, saving space next to walls and between loads.

Description: Available on trucks of practically any capacity produced by the maker. Short length of forks is an advantage in operating in limited space.

Further information on this device is available from the manufacturer.

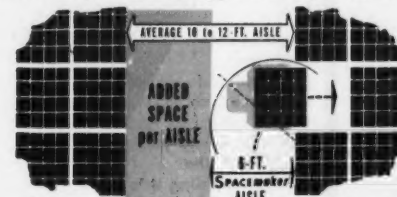
Source: Yale & Towne Mfg. Co., Philadelphia Div., Dept. CP, 11,000 Roosevelt Blvd., Philadelphia 15, Pa. . . or for more information check CP 7089 on handy form, pages 2 and 3.



NOW TO YOUR EXISTING STORAGE FACILITIES

with the **RAYMOND
SpaceMaker
ELECTRIC
TIERING TRUCK**

How wide are the storage aisles in your plant or warehouse . . . 10 feet . . . 12 feet? If so, you're wasting up to one-half this width making room for conventional-type tiering trucks!



The new RAYMOND SpaceMaker does away with waste aisle space — increases your storage capacity by as much as 1/3. It's a rider-type tiering truck that actually right-angle tiers loads 130" high from aisles only 6-ft. wide. Just look at these SpaceMaker advantages:

- **STACKS FROM 6-FT. AISLES** Exclusive RAYMOND design eliminates counterweight, shortens overall length. Result: SpaceMaker tiers loads from 6-ft. aisles — permits one extra row of storage for each aisle now in use.
- **MANEUVERS LIKE MAGIC** Offset drive wheel produces 200° turning arc — enables SpaceMaker to maneuver in aisles narrower than its own length with load.
- **WEIGHS SO MUCH LESS** Compact construction plus no counterweight result in far lighter truck. Thus, SpaceMaker operates in low-capacity elevators, on lighter-capacity floors — has lower battery capacity requirements, costs less to run.

● **WRITE TODAY FOR BULLETIN 703** — it tells the complete SpaceMaker story. And ask for a SpaceMaker demonstration — you have to see it to believe it!

Pioneers Since 1840

RAYMOND

SpaceMaker Model E25T Straddle-type, telescopic tiering truck. 2000-lb. capacity.

The RAYMOND CORPORATION

Formerly LYON-Raymond Corporation

5750 SpaceMaker St., Greene, N.Y.

Gentlemen: Please send me Bulletin 703 on your new SpaceMaker Electric Tiering Truck.

Name _____ Title _____

Company _____

Street _____

City _____ State _____

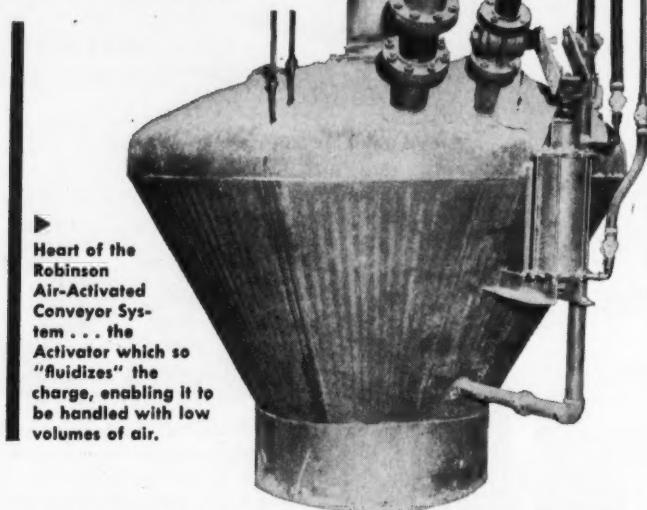
When inquiring check CP 7090 on handy form, pgs. 2-3

Robinson

Air-Activated

Conveyor

The
Low-volume
Air Conveyor



► Heart of the Robinson Air-Activated Conveyor System . . . the Activator which so "fluidizes" the charge, enabling it to be handled with low volumes of air.

Averages 1 Cubic Foot of Air per Pound of Materials Handled

Right here is one reason — and a stand-out reason — why the Robinson Air-Activated Conveyor is so economical in handling bulk dry-pulverized and fine-granular materials. Compressed air costs money so, if you can hold air costs down, as with the Robinson, you keep handling costs down. And no other power is necessary to operate a Robinson System.

The reason why the Robinson System can operate with such low air volume is due to the fluidized nature of the charge when transported through the pipes. Pressure alone will not suffice. It requires this Robinson Air-Activation or fluidizing effect. Material "flows" rather than blasts through.

Many Robinson Systems are in service handling a variety of products and in some cases are transporting them several thousand feet. This system may be just what you need for handling those dry, bulk materials in your plant. It has several outstanding features which we'll be glad to discuss at your convenience.

ROBINSON

Air-Activated

A Division of
Morse Boulger Destructor Co.

CONVEYOR SYSTEMS

211-V EAST 42nd ST. • NEW YORK 17, N. Y.

Representatives in Principal Cities

When inquiring check CP 7091 on handy form, pgs. 2-3

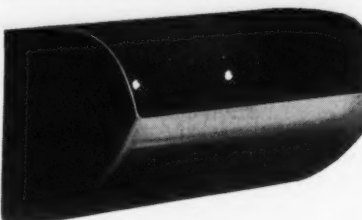
MATERIAL HANDLING

Latest conveyor cup loads, discharges completely . . .

result of improved design conforming to natural flow of material

Uses: Cup for high-speed conveyors.

Features: Lip of the cup is fashioned in a straight line tangent



Cup for high-speed conveyors

to curved section to assure full-load with each scoop and facilitate complete discharge. Top ends of cup are in form of hyperbolic spiral for maximum capacity.

Description: Calumet Conveyor Cup conforms with the natural flow of material at unloading point. Flow of material is not hampered by frictional or gravitational resistance, maker reports.

To promote balance, bolt holes are placed slightly above center rather than at the top of cup's back. Cups can be spaced close together on belt and can be operated over any size pulley at high speeds.

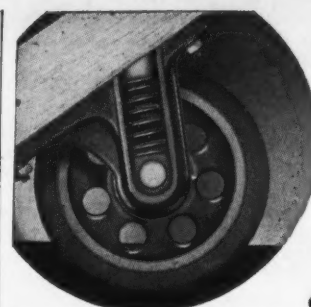
Construction is heavy-gauge steel, entirely smooth inside and out.

Source: Development of the B. I. Weller Company, Dept. CP, 327 S. La Salle St., Chicago 4, Ill. . . . or for more information check CP 7092 on handy form, pages 2 and 3.

Operating information on fork trucks

Specification bulletin of six pages contains complete engineering and operating information on manufacturer's type JOM fork trucks. These models are built in 7000, 8000 and 10,000 lb capacities for continuous heavy duty. Drawings and cutaway view photographs give details.

An engineering data section supplies specifications. Application photos show how these trucks are being used in a variety of industries for heavy lifting jobs. Bulletin 1328 is issued by Baker Industrial Truck Div., The Baker-Raulang Co., Dept. CP, 1250 W. 80th St., Cleveland 2, Ohio. When inquiring specify CP 7093 on handy form, pages 2 and 3.



**WELD-BILT
SPRING
BEARING**

**"Walking
Wheels"**

**Take the BUMPS
out of Trucking**

Your trucks equipped with "Weld-Bilt" Spring Bearings "step over" obstructions without jarring the load. They absorb the shock waves that usually take a toll in product damage, wear and tear on flooring and trucks, and reduced personnel efficiency.

Actually, Weld-Bilt Spring Bearings trucks often last 50% longer. Their use means savings on floor maintenance, easier trucking, less effort, happier truckers, too. That's why investment in Weld-Bilt Trucks pays you worthwhile dividends. Why don't YOU write today for the whole story?

Spring Bearing Hand Trucks Available in many sizes and types for all needs.

Spring Bearing Platform Trucks Made with a wide variety of superstructures for all types of work.



WEST BEND EQUIPMENT CORP.

Weld-Bilt Materials Handling Equipment includes:

**MATERIALS
HANDLING
ENGINEERS**

319 Water Street
West Bend, Wis.

Portable Elevators • Pallet Trucks • Single Stroke Lift Trucks • Two-Wheel Trucks • Platform Trucks • Skid Platforms.

When inquiring check CP 7094 on handy form, pgs. 2-3

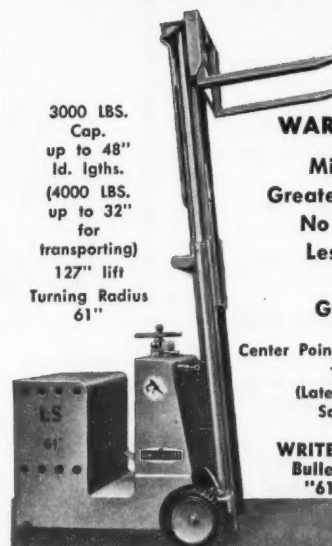
**SPACEMASTER
new "61"**

**HEAVY DUTY
HIGH SPEED
WAREHOUSE TRUCK**

Minimum Aisles
Greater Lateral Stability
No Grease Points
Less Down Time
Faster Lift
Greater Safety

Center Point Full Vision Drive Permits
TRAILING LOAD
(Latest Gov't. & Industry
Safety Regulations)

WRITE for
Bulletin
"61"



LEWIS-SHEPARD

LEWIS-SHEPARD PRODUCTS INC., 146 WALNUT ST., WATERTOWN, 72, MASS.
Midwest Plant CRAWFORDSVILLE, INDIANA

When inquiring check CP 7095 on handy form, pgs. 2-3

CHEMICAL PROCESSING

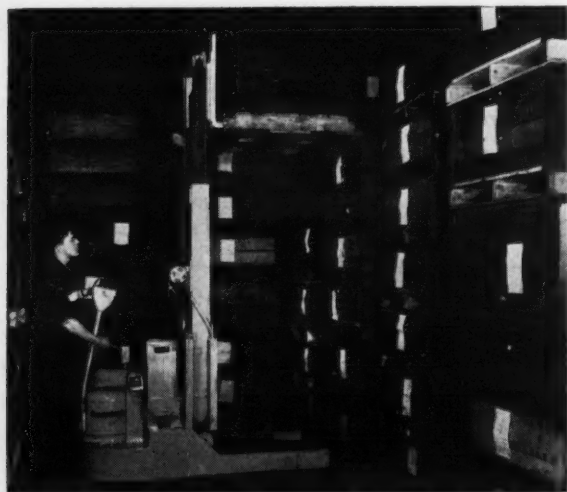
MATERIAL HANDLING

Pallet length of working space saved when stacker forks can extend and retract . . .

lift mechanism of driver-led truck moves forks into pallet; operates by pushbuttons

Uses: Tying and detying of pallet loads in extremely narrow aisles by means of driver-led electric trucks.

Features: Operator can save full length of load in handling pallets. Stacker is moved into desired position for picking up load, just like a standard truck. Forks are raised to proper height, and then, by merely pressing a



Driver-led truck operates in 6' aisles

button, forks are moved toward load and into pallet. Then, load is raised slightly, and another button is pushed and load is retracted. Tying, of course, is achieved in just the opposite manner.

Description: Stacker has an overall height of 79" and has a telescopic lift of 94". It is rated for 1,500 lb, 32" loads. For a 32" long load, aisle width needed is 76", about half the space customarily employed. This is approximately the same size aisle used in manual set-ups, but stacker operation permits higher tiering at a faster rate.

Source: SRT Transtacker is built by Automatic Transportation Co., Dept. CP, 149 West 87th St., Chicago, Ill. . . . or for more information check CP 7096 on handy form, pages 2 and 3.

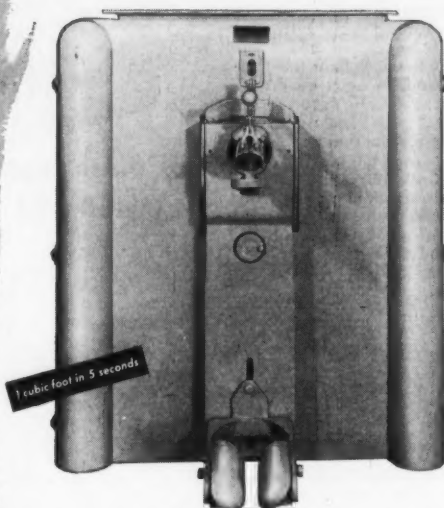
Moving wet or dry bulk materials with pivoted bucket carrier

Four-page bulletin describes features of pivoted bucket carrier designed for moving wet or dry bulk materials. Consisting of a continuous series of buckets suspended between two endless chains, the carrier is adaptable to many types of circuits including horizontal, vertical and inclined paths. Dimensional drawing shows operation.

Bulletin points out that the supporting framework serves as conveyor trackage also, resulting in reduction of weight and cost. Special bucket design permits use of any sheet material desired to withstand corrosive materials: stainless steel, monel, aluminum, plastics, etc. In meeting individual requirements, buckets can vary from 12 to 24 inches in width. Bulletin HB-551 is issued by Hapman Conveyors, Inc., division of Hapman-Dutton Co., Dept. CP, Kalamazoo, Mich. When inquiring specify CP 7097 on handy form, pages 2 and 3.

OCTOBER, 1951

It's in the bag...
when you use a **STOKER**

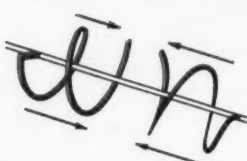


NO FUSS! NO MUSS!
with Stoker Bag Packer
Model 1-5

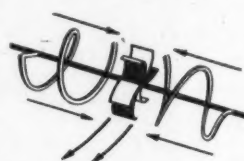
1 cubic foot in 5 seconds

Designed to fill valve bags, open-mouth bags or drums with powdered materials, these packers include many features not found in conventional bag fillers. Stoker Packers are fully adjustable to accommodate different bag sizes—the same machine may be used on a number of materials—operation is exceptionally clean and free from dust and blow—packs predetermined weights within ounces... Requires 1/4 to 1/2 less manpower!!

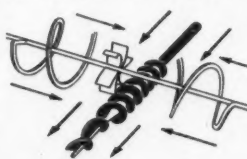
No other packer has all these Stoker-designed features!



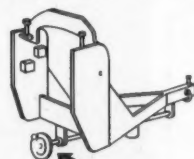
RIBBON AGITATOR positively eliminates bridging in the hopper.



PADDLE WHEEL in center of agitator shaft force-feeds filling screw.



FILLING SCREW is tapered to eliminate jamming—assures continuous flow.



SCALE BEAM is set by operator from front of packer. Easily controlled, accurate weight.

STOKER MODEL 'IN' PACKERS

This model is specifically designed to handle insecticides, which because of the oil and moisture content of the fine powder are especially difficult to handle with ordinary equipment. Stoker Model 'IN' Packers easily fill three hundred 50-lb. bags per hour!

PACKS 1 CUBIC FOOT IN 5 SECONDS

Stoker Model 1-5 Bag Packers are now being used successfully in commercial operations handling these materials: Sulfur, pulverized coal, clays, sugar, cottonseed meal, malt, yeast, cellulose gum, doughnut flour, rosin, paint pigments, asbestos, some plastics, titanium, alfalfa meal, insecticide dusts, certain fertilizers and many other hard-to-handle materials... AND, STOKER MODEL 1-5 PACKERS DO IT AT THE APPROXIMATE RATE OF ONE CUBIC FOOT IN FIVE SECONDS.

Stoker Testing Service

If you have a particularly difficult filling problem, the Stoker experimental laboratory is available to you without charge. Send us an adequate sample of material to be packed and we will run tests and send you a report with recommendations for the equipment needed to bag your products.

Send for complete information today on the successful packing of your material.

H. L. STOKER CO.

111 College Avenue, Claremont, California

When inquiring check CP 7098 on handy form, pgs. 2-3

CLEANS Fouled Heat Exchanger Tubes **QUICKLY...**

WILSON TP-301 CLEANER



This high speed tube cleaner is designed to increase output and minimize down-time. The improved Model TP-301 is the only tube cleaner which can remove deposits from completely plugged heat exchanger tubes . . . and other fouled straight tubes heretofore not considered practical to clean.

Many improvements, resulting from years of field experience, have been built into the new TP-301 cleaner.

- **MORE POWERFUL**—operating speed up to 3500 RPM at 90 psi utilizing 130 cfm.
- **LIGHTER WEIGHT**—only 15 lb.
- **SHORTER**—only 13" overall.
- **INCREASED CAPACITY**—from $\frac{3}{8}$ " up to $2\frac{1}{2}$ " or even 3" O.D. tubes up to 40 ft. in length.
- **LOW AIR PRESSURE**—operates on air pressure as low as 50 lb.
- **LOW HEAD ROOM NEEDED**—minimum practical working head room 5 ft.
- **COSTS LESS** than previous models.

VARIOUS CARBIDE BITS AVAILABLE



Send for Bulletin giving complete details on this man-hour and money-saving tube cleaner

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CABLE "TUBECLEAN" NEW YORK

WILSON TUBE CLEANERS • TUBE EXPANDERS

When inquiring check CP 7099 on handy form, pgs. 2-3

Page 96

How to save Labor and Money by Centralizing Lubrication

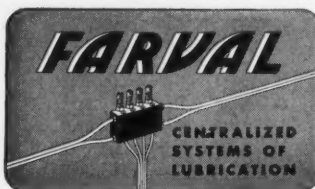
FOR more than 20 years, Farval has been saving manpower and money for users. Through efficient, dependable lubrication of machines and industrial equipment of all kinds, Farval saves 4 ways: It saves oiling labor, it saves lubricant, it reduces bearing expense, it eliminates down time.

The Farval System is a positive mechanical method of delivering oil or grease under pressure to a group of bearings from one Central Station, in exact quantities, as often as desired. It consists of a central pumping unit, two main supply lines and a measuring valve for each bearing.

Bulletin 25 gives you the facts and figures to apply to your own lubrication problems. The Farval Corporation, 3257 East 80th St., Cleveland 4, Ohio.



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Bulletin 25



When inquiring check CP 7100 on handy form, pgs. 2-3

You'll want this valuable book—it tells how to cut steam operating costs, control quality and increase production.



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3162 N. 17th Street, Philadelphia 32, Pa.

Please send me a copy of your Publication No. 3250 on Cochrane C-B System of Condensate Drainage Control.

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Briefs . . .

Sulfite liquor supplies heat for steam generation

The author states certain problems arising in the disposal of waste sulfite liquor, and describes a method whereby, after evaporation to 60% solids, the liquor is burned, along with coal to generate steam. Evaporators for liquor are described along with flow sheet for concentrating equipment. Fly ash treatment is also discussed. Includes 4 pages, 3 photos, 2 diagrams and 2 tables. ("Industry and Power", Aug. 1951, page 61)

Continuous molding of paraffin wax

Authors contrast the conventional method with new continuous process. Initial idea came from a machine used in chocolate production. Modification of this machine is molding paraffin successfully. 4 pages and 6 photos. ("Petroleum Refiner," August 1951, page 97)

Indoor versus outdoor plant construction

Article concludes a series beginning in the June issue, and deals primarily with savings in building costs. Compares buildings designed for indoor and for outdoor operation. Specifies two *musts* for successful outdoor operation. Contrasts two types of plants as to plant investment, maintenance and repairs, operating costs and safety. Table gives comparison of investment cost distribution for indoor and outdoor plants. 4 pages, 2 tables, 3 figures, and 3 pages of discussion. ("Chemical Engineering Progress," August 1951, page 385)

Synthesis of tartaric acid

Authors state objective of research to be a synthesis utilizing fairly inexpensive and relatively simple operations, and giving a high yield of nearly pure product. Reaction selected was the hydroxylation of maleic acid. Effects of catalyst ratio, concentrations of hydrogen peroxide and maleic acid, and operating temperatures were studied. Results are tabulated and graphed. A proposed commercial process is outlined with flow sheet. 6 pages, 6 figures and 6 tables. ("Industrial and Engineering Chemistry," August 1951, page 1780)

Equipment standards

K. W. Mahen of American Cyanamid Company serves the chemical processor by stating the standards adopted by his company for specific purposes, and states how these standards are used by the engineering division. Lists the various subjects covered by standards. Includes 2 pages, 2 figures and 1 table. ("Industry and Power", July 1951, page 76)

Acetaldehyde by dehydrogenation of ethyl alcohol

Authors call attention to the undesirable features of customary processes for making acetaldehyde. Investigation here reported was successful in avoiding these features. Theory of alcohol dehydrogenation is presented and discussed. Apparatus used is described. Various catalysts were tried,

CHEMICAL PROCESSING

from contemporary publications

Here's a quick look at interesting articles, appearing in other publications . . . as selected by Technical Editor, H. McCormack

and results are tabulated. The better catalysts were tried in continuous runs up to 100 hours, and results as to decreased catalyst efficiency are stated. Temperature and vapor velocity were varied, and results noted. Based on experimental results, a commercial process is proposed and shown in a schematic drawing. 7 pages, 4 figures and 6 tables. ("Industrial and Engineering Chemistry," August 1951, page 1804)

Diffusion rates in extraction of porous solids

(Part I — Single-phase extractions) Authors present the results of an experimental study of the extraction of five chemicals from three types of carrier solids. Equations were derived for the extraction of a single phase solute from spheres in the case of batch-wise, counter-current, and parallel operation. 10 pages, 20 figures and 4 tables. ("Chemical Engineering Progress," August 1951, page 405)

Corrosion and scaling problems of radiant heating piping

This article discusses the various causes of corrosion and scaling of pipe, stresses the importance of minimizing such action, and suggests remedial measures. Includes 2 pages, 3 figures and 3 photos. ("Industry and Power," Aug. 1951, page 68).

Use and misuse of organic water conditioning materials

Authors discuss the use of certain organic materials in conditioning water for steam generation, when the treatment occurs in the boiler. Ways in which different agents function in waters of different composition are illustrated by examples. Several case histories are given. 4 pages, 4 figures and 2 tables. ("Power Engineering," August 1951, page 70)

Determining gamma isomer in Lindane

A simple, rapid and direct method, for production control as well as specification analysis, was needed. Authors developed such a method, using freezing point technique. Equipment, procedure, and results on samples of known composition are described. 4 pages, 8 figures and 4 tables. ("Analytical Chemistry," August 1951, page 1106)

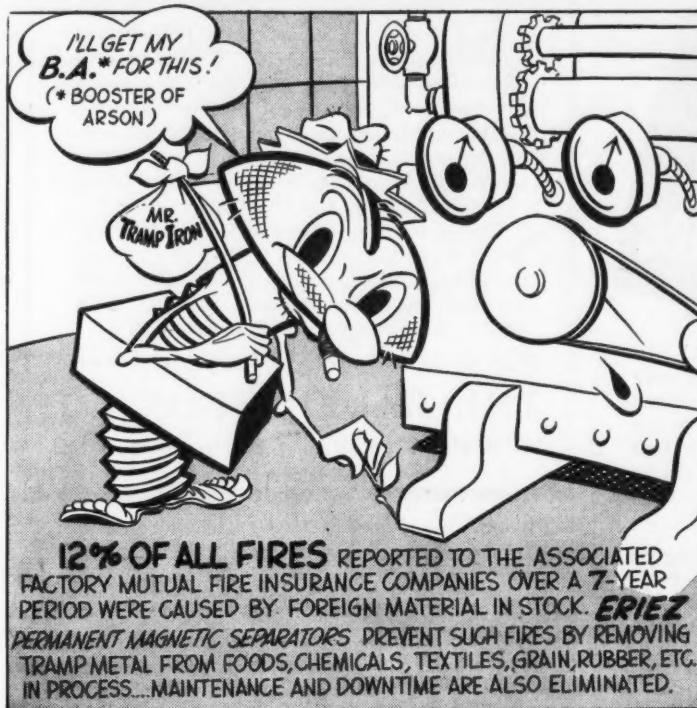
Fluctuating steam loads call for accumulators

Author discusses the advisability of installing steam accumulators in plants where the demands for steam fluctuate. Describes how accumulator may be installed and used. Cites examples and includes schematic drawings for four operations. 4 pages, 6 figures. ("Industry and Power," September 1951, page 69)

OCTOBER, 1951



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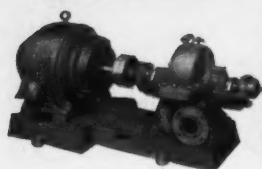
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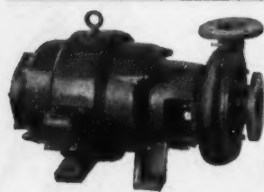


"You never miss the water 'til the well runs dry"

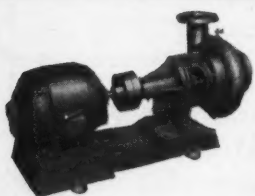
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General Service Unipump for use where space is limited.



Non-clogging type "U" for liquid carrying solids.

Because plants take their pumping systems for granted a pump break-down most often comes as an expensive surprise.

It's reassuring to have the stamp of approval placed on your plant's pumping system by a WEINMAN Centrifugal Specialist. This man is thoroughly familiar with your requirements. The company that he represents has been a leader in this field since before the turn of the last century. He has earned his title "CAREER MAN IN PUMPS."

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You'll want this
BULLETIN



As a reader of **CHEMICAL PROCESSING**, you will find our new Bulletin No. 52 right up your alley. This is evident from the title—"Bauer Machinery for the Process Industries."

The bulletin illustrates and describes machinery for crushing, breaking, granulating, pulverizing, fiberizing, defibrating, separating, classifying, mixing, and blending.

The materials processed with Bauer machinery include grains, seeds, nuts, copra, meal cakes, foods, feeds, wood chips and other paper materials, feathers, minerals, metals, hulls, shells, bones, rubber, pigments, etc., etc.

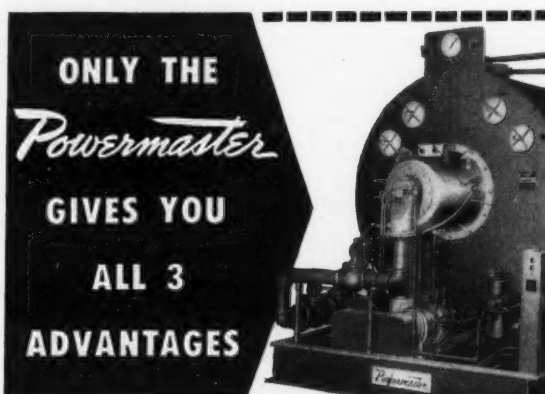
We'll gladly send you the bulletin upon request.

THE BAUER BROS. CO.

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1. Wide range between high and low fire—you use less fuel. 2. Freedom from carbon cuts clean-up time and expense—usually by 50%. 3. Change from oil to gas (or gas to oil) in a few minutes.

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New

Surveys legislation by States on water pollution

The essential aspects of the legislation and regulations of the States and Territories have been extracted in this 142-page book, especially with reference to the effect of the laws upon industrial establishments within the States. Presents the measures necessary to comply with the State's regulations, the enforcement procedures enumerated in the laws, and the steps which must be taken by manufacturers to abate water pollution.

Where standards of water quality have been adopted, these are given in their entirety. An appendix provides a tabulation of the standards of interstate agencies which affect more than one state. For orientation purposes, the Federal Standard Legislation governing water pollution is discussed in some detail. In addition, the book reports on the various interstate agencies active in water pollution control.

To obtain "Industrial Water Pollution" (Survey of Legislation and Regulations), remit \$5 direct to Chemonomics, Inc., Dept CP, 400 Madison Ave., New York 17, N.Y. When inquiring specify CP 7106 on handy form, pages 2 and 3.

Details material handling, mixing and blower equipment

Storage bins, screw elevators and conveyors, sifters and weigh hoppers are types of material handling equipment discussed in this 12-page bulletin. Working capacities of double arm mixers featured are from 1 qt to 1500 gal. They are available for operation at atmospheric, reduced or elevated pressures; with single, multiple or variable speed drives; and temperature controlling jackets. A line of planetary action, vertical mixers is offered which have multiple beater speeds and are designed to accommodate several sizes of bowls. Spiral ribbon mixer shown can be used for both continuous or batch mixing and blending of pulverized, granular dry or wet materials.

Some of the applications of the direct drive blower equipment listed include air conditioning, drying with vacuum, pneumatic conveying, refrigerating and supercharging diesel engines. Specification tables for three classes of blower equipment are given: low, medium and high capacity. Range of delivery varies from 44 cfm at 1160 rpm to 13,560 cfm at 1500 rpm. Figures cited are at 4.5 psi. Bulletin 51759 is issued by Read Standard Corp., Dept. CP, York 1, Pa. When inquiring specify CP 7107 on handy form, pages 2 and 3.

Reports on decontamination of radioactive surfaces

Four-page reprint of an article from July 1951 issue of Modern Sanitation analyzes the problem of decontaminating surfaces exposed to radioactivity, from two standpoints. First, the surface material should be of the type from which radioactive materials can be removed most easily. Second, the cleaning agent employed should preserve the integrity of the surface at the same time as it removes contamination.

In discussing types of surfaces, mention is made of tests showing that special plastic coatings offer surfaces more responsive to cleaning than glass, lead, or stainless steel. In selection of cleaning agents, bulletin reviews those

Literature

properties of alkyl sulfonate which contribute to its mild detergent qualities. In addition, a program is outlined for the maintenance of hazard-free conditions in those laboratories engaged in radiation work. Reprints of "Cleaning of Contaminated Painted Surfaces" can be obtained from The Solvay Process Division, Allied Chemical & Dye Corporation, Dept. CP, 40 Rector St., New York 6, N.Y. When inquiring specify CP 7108 on handy form, pages 2 and 3.

1952 buying guide lists radio, TV and electronic equipment

Containing 210 pages, the publication is a directory of radio, television and electronic equipment. Special emphasis is placed on equipment for industrial maintenance, research and production requirements. There are detailed listings of standard and special purpose electronic tubes, test instruments and meters, transformers, resistors, capacitors, rheostats, relays, switches, rectifiers, tools and generators. Also, printed electronic circuits, wire and cable, batteries, sockets, generators, power supplies, and a wide variety of other electronic equipment and components.

Six instruments are listed in a section on equipment for the detection of nuclear radioactivity. The products are portable in design and particularly suited for radioactive ore detection and health-hazard applications in laboratories. An extensive rotogravure section shows a line of public address amplifiers and complete sound systems for a variety of uses. In addition, microphones, speakers and other accessories are detailed here. A technical book section covering nine pages includes leading publications on the theoretical and practical aspects of radio, electronics and electricity. Catalog 127 is issued by Allied Radio Corp., Dept. CP, 833 W. Jackson Blvd., Chicago 7, Ill. When inquiring specify CP 7109 on handy form, pages 2 and 3.

Cleaning methods and materials for metals used in aircraft

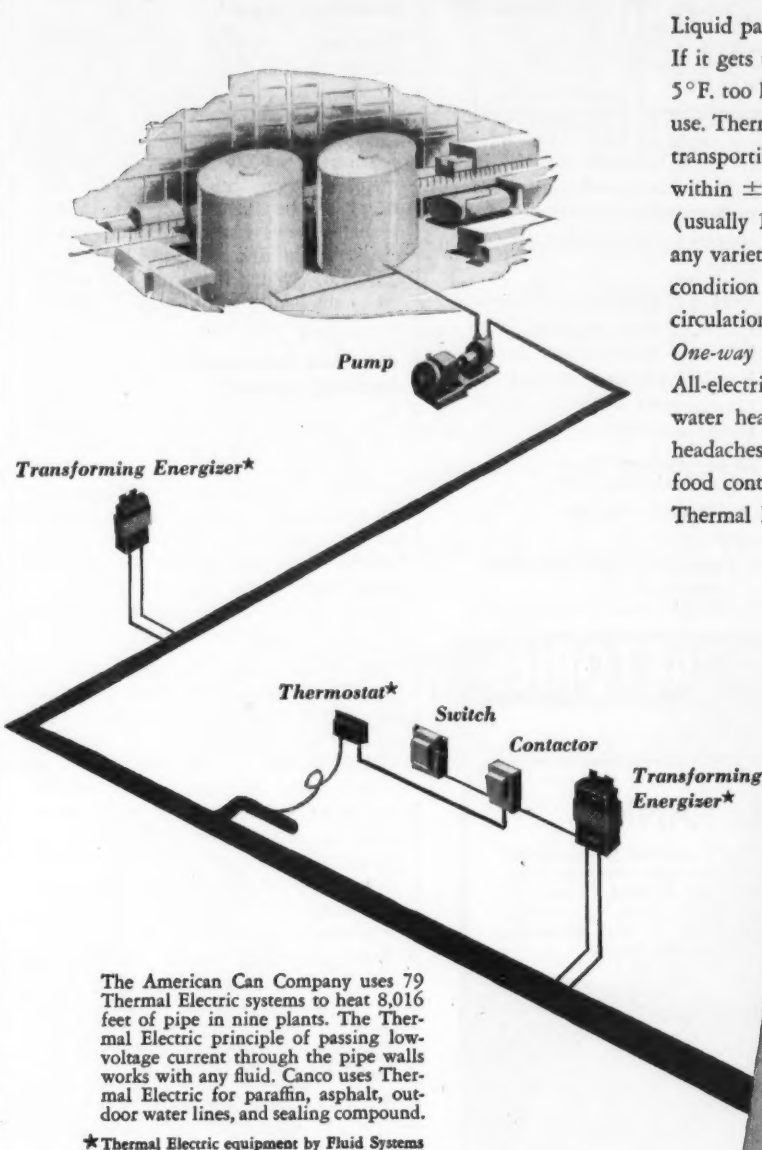
Information contained in 48-page illustrated booklet is based on case histories and successful applications in aircraft manufacturing plants. It describes specialized materials, procedures and equipment for use in cleaning metals and preparing them for finishing, inspection or assembly. Among the many operations on which helpful data is provided are the following: preparing aluminum for anodizing; preparing aluminum for spot welding; preparation of aluminum for painting by still tank method and in spray washing machines; cleaning aluminum before and after heat treating; stripping paint from aluminum; cleaning magnesium for finishing; treating wash water in paint spray booths; and, cleaning aircraft metals for inspection and assembly.

Also presented in the booklet are recommendations on equipment designed to aid in cleaning operations such as rinse tank or spray, metal-washing machine, air-water rinse nozzle and steam-detergent gun. Problems covered not specific to the aircraft industry are cleaning coolant supply tanks, cleaning machine parts before repair, removing scale from water-cooled equipment and cleaning painted machine shop equipment.

"How to Clean Metals in Aircraft Production" is issued by Oakite Products, Inc., Dept. CP, 22 Thames St., New York 6, N.Y. When inquiring specify CP 7110 on handy form, pages 2 and 3.

OCTOBER, 1951

Making Wax Work for American Can Company



The American Can Company uses 79 Thermal Electric systems to heat 8,016 feet of pipe in nine plants. The Thermal Electric principle of passing low-voltage current through the pipe walls works with any fluid. Canco uses Thermal Electric for paraffin, asphalt, outdoor water lines, and sealing compound.

★ Thermal Electric equipment by Fluid Systems

PAT. NO. 2,224,402
Thermal Electric Fluid Systems INC.

Please send without obligation ☐ "Liquid Paraffin—A Survey of Handling Methods" or ☐ "Simplified Industrial Fluid Transport Cuts Costs".

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Thermal Electric and Fluid Systems, Inc. are trade marks registered in the U.S. Pat. Off.

When inquiring check CP 7111 on handy form, pgs. 2-3

Liquid paraffin is a temperamental fluid. If it gets too cool, it clogs. If it gets 5°F. too hot, it oxidizes, making it unfit for use. Thermal Electric, the modern method of transporting heated fluids, can regulate paraffin within $\pm 1^\circ\text{F.}$ of the design temperature (usually 160°F.) over any distance, through any variety of ambient temperatures, during any condition of flow. ★ There is no need for constant circulation, thus there are no return lines. One-way transport reduces piping 70%. All-electric operation eliminates steam or water heating with all their costs and maintenance headaches. ★ Small wonder that this leader in the food container field has consistently selected Thermal Electric to handle its process fluids!



Consult Fluid Systems, Inc., for specialized engineering aid in designing pipe transport of process fluids.

Transfer HEAT-10 Times FASTER WITH SILICON CARBIDE REFRACTORIES



THERMAL CONDUCTIVITY of Electro Silicon Carbide is approximately ten times that of fire clay. Think of the time gains in transferring heat through muffles and hearths!

THERMAL SHOCK RESISTANCE, combined with relatively low thermal expansion, guarantees that Electro Silicon Carbide Refractories will withstand the shocks of sudden and violent temperature changes.

Tell us your refractory requirements so that we can apply our 32-year experience with special purpose refractories to your individual needs.

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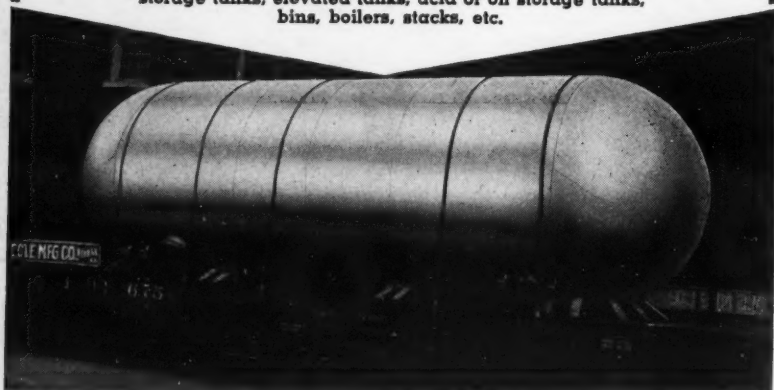


Special REFRACTORIES

When inquiring check CP 7112 on handy form, pgs. 2-3

COLE ALUMINUM TANKS

We have available stock sizes from 9,500 to 22,800 gallons for pressure storage, and tanks of 99.6% pure aluminum for hydrogen peroxide from 5,000 to 11,150 gallons. "Cole" can furnish tanks made of steel, aluminum and stainless steel — built in accordance with ASME Code — to meet all insurance requirements. We invite your inquiries for high pressure storage tanks, elevated tanks, acid or oil storage tanks, bins, boilers, stacks, etc.



R. D. COLE MFG. CO.

NEWNAN, GA. Established 1854



TANKS TOWERS CYLINDERS VESSELS

When inquiring check CP 7113 on handy form, pgs. 2-3

NEW LITERATURE

Furnishes data for selecting mixers

Two-color, 16-page bulletin gives curves and engineering data needed to properly specify mixing requirements. Several types and models of mixers are shown together with specifications. Special designs are recommended where problems of the material to be handled require them. Bulletin 74 is issued by International Engineering, Inc., Dept. CP, Dayton 1, Ohio. When inquiring specify CP 7114 on handy form, pages 2 and 3.

Improve Industrial braking system

Four-page bulletin explains design changes in the operation of manufacturer's hydraulic crane bridge brake systems. Changes involve replacement of a hydraulic pressure switch, located in the control box, by a limit switch operated by the piston rod of the releasing cylinder, and the use of materials in the releasing cylinder which prevent rusting or corrosion.

Improvements cited for these changes include: changes in fluid pressure, because of temperature variation, will not affect operation of the parking brake; switch is snap acting — no slow make or break contacts; and action of switch is positive in action since it is mechanically operated by piston in the releasing cylinder. W.I.P. News, August 1951, is issued by Wagner Electric Corp., Dept. CP, 6400 Plymouth Ave., St. Louis 14, Mo. When inquiring specify CP 7115 on handy form, pages 2 and 3.

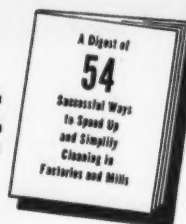
Gives formulae meeting Federal specs

Twenty-two suggested formulations of paint and varnish to meet twelve Federal specifications are offered in technical bulletin. "Federal Specifications" is issued by Archer-Daniels-Midland Company, Dept. CP, Box 839, Minneapolis, Minn. When inquiring specify CP 7116 on handy form, pages 2 and 3.

Vacuum Impregnation brochure

Containing 22 pages, the publication explains the process of vacuum impregnation, lists applications and describes and illustrates the equipment uses. In the general discussion of the process, it is defined as that method of filling voids in porous materials or assemblies with a desired impregnant after air and moisture have been removed. Following are

Yours FREE— 54 Ways to Cut Cleaning Costs



Here's a 16-page digest full of proved Oakite procedures for saving time and money on 54 big maintenance-cleaning jobs, such as:

- Descaling heat exchangers
- Desliming humidifiers
- Cleaning conveyor belts
- Steam-detergent cleaning

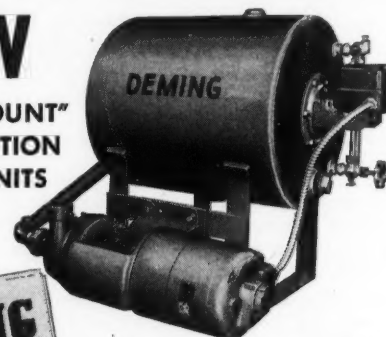
FREE copy sent on request. Write Oakite Products, Inc., 187 Thames St., New York 6, N. Y.

SPECIALIZED INDUSTRIAL CLEANING
OAKITE
MATERIALS • METHODS • SERVICE

Technical Service Representatives in Principal Cities of U. S. & Canada

When inquiring check CP 7117 on handy form, pgs. 2-3

NEW "MOTOR-MOUNT" CONDENSATION RETURN UNITS



**DEMING
CONDENSATION
RETURN UNITS**

The new units are equipped with Deming "MOTOR-MOUNT" centrifugal pumps. Motor has standard NEMA type "C" mounting flange and is furnished in single phase, two or three phase, or direct current, as specified.

The complete line includes

Single Units and Duplex Units in a wide range of sizes for taking care of 2,000 to 40,000 square feet of radiation. (The Single Unit type is illustrated.)

Send for illustrated BULLETIN NO. 4400 which includes performance tables of capacities, pressures and other information about Deming "MOTOR-MOUNT" Condensation Return Units.

The Deming Company, 522 Broadway, Salem, Ohio

When inquiring check CP 7118 on handy form, pgs. 2-3

CHEMICAL PROCESSING

NEW LITERATURE

some of the applications which are mentioned and described: insulation of electrical equipment, including armatures, capacitors, coils, cables and transformers; filling of thermometers and small bottles; weatherproofing of papers and textiles; bleaching and dyeing of baseball bats; and inking of typewriter ribbons.

Three examples explain how the manufacturer's equipment is used for impregnation of: capacitors with a chlorinated wax compound, aluminum-magnesium alloy with sodium silicate, and electrical coils with an insulating varnish. In addition, the publication specifies 24 models of the equipment. Photographs of some of these types are shown along with other products of manufacture. Catalog 710 is issued by F. J. Stokes Machine Co., Dept. CP, 5500 Tabor Rd., Philadelphia 20, Pa. When inquiring specify CP 7119 on handy form, pages 2 and 3.

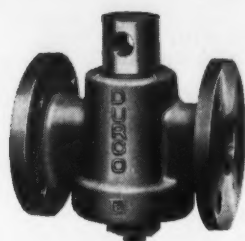
Service tips on sulfated storage batteries

Two-page, 8½ x 11 inch data sheets offer information on how to return to full service motive power storage batteries which have lost capacity due to "sulfation". Sulfation is explained as the formation of lead sulfate on the positive and negative plates due to continued undercharging while in use, or prolonged idleness without charge. The sheets give 6 causes of sulfation and detail 11 steps to follow to restore batteries having various degrees of deposits. "Servicing Sulfated Storage Batteries" is issued by Gould-National Batteries, Inc., Dept. CP, Trenton 7, N. J. When inquiring specify CP 7120 on handy form, pages 2 and 3.

Military packaging guide offered

Thirty-six-page, 2-color, pocket-size bulletin outlines Government packaging specifications which involve flexible protective barriers against weather, water, moisture, mildew, corrosion, etc. More than 30 current JAN, AN, MIL, UU, and other specifications are mentioned and cross-indexed. Both methods and materials are covered with numerous illustrations of types and procedures for packing. Bulletin 25MG is issued on letterhead request to Mehl Manufacturing Co., Dept. CP, 2057 Reading Rd., Cincinnati 2, Ohio.

For more information on product at right, specify CP 7121
... see information request
blank between pages 2-3.



*The Durco
Type F Valve*

DURCO'S "one-plant manufacture" means "one-plant responsibility"

All DURCO equipment—pumps, valves, pipe, fittings—are DURCO-made from start to finish in a modern, well equipped plant. From casting to finished product, the job is ours and the responsibility to our customers is undivided.

Your nearest DURCO representative is trained to find the solution to your corrosion problems and to help you get the most from DURCO equipment now in your plant.

THE DURIRON COMPANY, INC.
DAYTON 1, OHIO



**YOUR SAFETY VALVES
CAN BE**

**BOOBY
TRAPS**

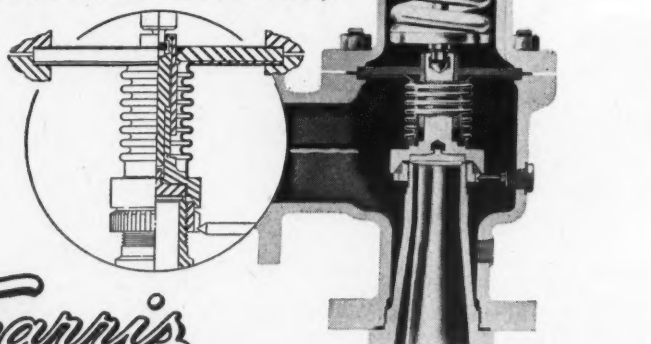
A safety valve that sticks is about as safe as a time bomb

Only BalanSeal® and FarriSeal® provide the positive protection at all times and under all operation conditions that makes them reliably safe.

Unique in design and principle, the BalanSeal Safety-Relief Valve has a protective bellows which is proportioned to eliminate any unbalanced downstream forces on the valve disc—which is perfectly balanced on its seat at the set pressure. Like its companion, the FarriSeal Valve, the guide, stem and spring are completely isolated from the lading fluid for perfect protection.

Pioneered by Farris Engineering Corp., BalanSeal, as thousands of installations are proving, is ideally suited for use wherever a collecting system is required for a series of safety-relief valves. It permits higher downstream pressure with consequent smaller piping—a feature which often permits savings in piping costs as high as 15 times the cost of the valves. The sole force opposing the opening of the valve is the spring. Static or surge downstream back pressure cannot affect the disc and has no effect on the relieving point.

You'll want to know more about the revolutionary safety-relief valve that can't stick under any circumstances. BalanSeal is described in detail in Bulletin No. 51B. Send for it today.



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Pending

Farris

SAFETY and RELIEF VALVES

FARRIS ENGINEERING CORP.

406 Commercial Avenue

Palisades Park, N. J.

When inquiring check CP 7122 on handy form, pgs. 2-3

NEW LITERATURE

Hard-facing alloy electrodes correct wear patterns

Fifteen-page bulletin presents general characteristics and properties of hard-facing alloy electrodes and details their use to meet specific kinds of wear encountered in various industries. Wear conditions considered in selection of alloy are abrasion, impact, compression, corrosion and heat. Evaluates eight electrode types as to ability to withstand wear patterns under properties, typical applications, welding procedure, size electrodes available and identifying coating color.

Features application guide which specifies electrodes according to name of part, tool or piece of equipment needing hard facing and the industry involved, such as: oil fields; paper mills; foundries; steel mills; cement plants; refractory plants; mining; pits and quarries — rock products; and, other general industrial applications.

Bulletin 5651 is issued by Alloy Rods Co., Dept. CP, York, Pa. When inquiring specify CP 7123 on handy form, pages 2 and 3.

Industrial progress of military reviewed in gov't newsletter

Industrial developments by the Armed Forces, full-flavor frozen grape juice, all-climate photographic film, improved metal castings, Canadian electronic progress and termite control are items featured in current issue of Technical Reports Newsletter. The bulletin also discusses two processes developed by the Northern Regional Laboratory which produce high yields of strong, easy-bleaching papermaking pulps from straw. September 1951 Technical Reports Newsletter is issued by Office of Technical Services, U.S. Department of Commerce, Washington 25, D.C., or it may be obtained from U.S. Department of Commerce field offices.

Story of paint company, its products and manufacturing processes

A short historical background serves as an introduction to the story of the paint company in this 16-page brochure. Largely in the form of an "open house" tour, the publication uses many pictures to outline the organization and activities of the concern. Some of the departments and functions highlighted include the laboratory and testing section, production division (with photographs of equipment and processes), and filling and labeling operations.

One section reports on and illustrates the various applications of the products manufactured, such as: chemical resistant coatings, industrial maintenance paints and building maintenance finishes. "The Story of Quality Finishes" is issued by McDougall-Butler Co., Inc., Dept. CP, 2929 Main St., Buffalo 14, N. Y. When inquiring specify CP 7124 on handy form, pages 2 and 3.

Larger 2nd edition of treatise on accident prevention

Practical ways to prevent industrial accidents and fires are contained in the 2nd edition of National Safety Council's 800-page manual. It contains 256 more pages and 11 more sections than the 1st edition. The book is confined principally to safety in the manufacturing industry and is based on the premise that a major proportion of all accident causes are common to all industry.

Subjects covered include permanent structure and plant

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in alignment!**



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When inquiring check CP 7125
on handy form, pgs. 2-3

CHEMICAL PROCESSING

NEW LITERATURE

layout; maintenance and maintenance crews; boilers; pressure vessels; refrigeration equipment; machine guards; materials-handling hazards; hand and portable power tools; welding and cutting; electrical hazards; flammable liquids; fire prevention; fire control; personal protective equipment; industrial health; engineering; industrial poisons; medical services in industry; safety organization and training; accident records, analysis and costs. One of the sections, "The Safety Man's Resources", is a bibliography of safety organizations and publications. Approximate cost of the manual is \$9. "Accident Prevention Manual for Industrial Operations" is issued by the National Safety Council, Dept. CP, 425 N. Michigan Ave., Chicago 11, Ill. When inquiring specify CP 7126 on handy form, pages 2 and 3.

Lists German research papers available in English

A large number of recent German patent applications and research reports concerning the production of inorganic chemicals are listed in this 11-page bulletin as available in English. Listings are given with complete references and abstracts. Under patent applications, 42 are listed and cover such topics as: production of anhydrous aluminum chloride, production of aluminum formate from alkaline earth formates, stabilization of perborate, production of silicon tetrachloride on an industrial scale, production of cuprous oxide and purification of selenium.

Among the translated research reports are subjects concerning: improved Claus furnace process for obtaining sulfur from hydrogen sulfide, production of ammonium sulfate from ammonia and sulfurous acid, analysis of pyrolusite, and manufacture of highly concentrated hydrogen peroxide in a two-stage process. Bulletin C 55 is issued on letterhead request to Research Information Service, Dept. CP, 509 Fifth Ave., New York 17, N.Y.

Practical applications is topic in vol II of ag chem text

Whereas the first volume of this work deals with the more fundamental phases of agricultural chemistry, the second is devoted to the practical applications and will be of more interest to the practicing agricultural specialist. Intended as a reference work, the book contains 588 pages and represents a compilation of papers by 23 authors from various academic institutions and industrial concerns. Part I concerns itself with the chemistry of: seed and cereal crops, fruit and vegetable crops, forage crops, meat and meat products, milk and dairy products, and eggs and poultry products.

Part II has chapters on nitrogenous, potassium, phosphate and mixed fertilizers. Also, liming materials and minor element supplements including boron, copper, manganese, molybdenum and zinc. Topics discussed in Part III cover the nutrition of the following farm animals: dairy cattle, beef cattle, horses and mules, sheep and goats, poultry, swine, and domestic and fur-bearing animals. Part IV, under the general heading of Pesticides, contains material on insecticides, fungicides and herbicides. A chapter on inventions and patents relating to agricultural chemistry, and another on chemurgic applications of agricultural products comprise the fifth and last part of the treatise. To obtain "Agricultural Chemistry, Vol II, Applications" remit \$9.50 direct to D. Van Nostrand Co., Inc., Dept. CP, 250 Fourth Ave., New York 3, N. Y. When inquiring specify CP 7127 on handy form, pages 2 and 3.



2 BLENDERS DO THE WORK OF 4 ... BETTER AND FASTER



Auburn Button Works, Auburn, N. Y. manufactures component plastic parts for the automotive, refrigeration and business machine industries. Uniform blending of plastics and pigments is an important part of the operation.

To check p-k claims for absolute uniformity in blending, an 8-qt. transparent p-k Laboratory Blender was installed.

Results were so satisfactory that a 2-cu. ft. and a 5-cu. ft. p-k blender were purchased to replace equipment previously used. Soon a second 5-cu. ft. p-k blender will be added. Auburn has found that the two blenders now in service require only 5 to 15 minutes blending time for accurate dispersion, whereas the old blenders required two hours or more for far less satisfactory results. Loading and unloading time has been reduced, and the smooth polished interior surface has reduced cleaning time to a matter of minutes. Either air hose or a dry cloth may be used, regardless of dyes or the materials blended.

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p-k will run experimental mixes of your material without cost or obligation. It will be your introduction to a new, accepted and proved method of dry blending.

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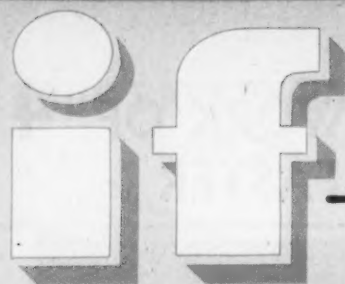
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Railway Exchange Building
Chicago 4

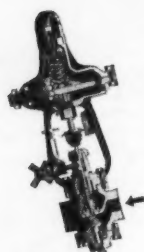
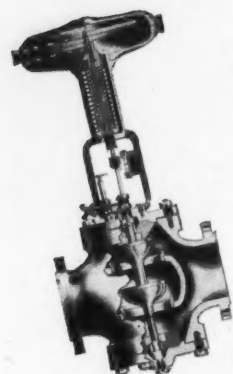
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96-A Huntington Avenue
Boston 16

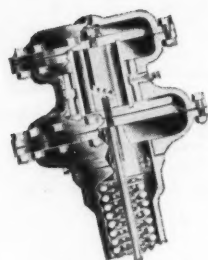
When inquiring check CP 7128 on handy form, pgs. 2-3



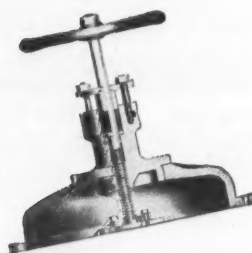
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Sizes in double port style 1/2 inch to 16 inches; single port 1/2 inch to 4 inches. Pressure ranges are 125 to 5000 psi, within body limits.

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NEW LITERATURE

Wall chart outlines corrosion data

A 12 x 9" card to hang on plant or office walls gives useful corrosion resistance information for several analyses of stainless steel tubing and pipe. Corrosive materials ranging in severity from fresh water and blood to sulfuric and hydrochloric acids are listed, with the recommended alloys for use with each.

The reverse side of the chart contains data on standard tubing sizes, as well as dimensions, pressures and tolerances for stainless pipe in schedules 5, 10 and 40. "Corrosion Data Chart" is issued by The Carpenter Steel Co., Alloy Tube Div., Dept. CP, Union, N. J. When inquiring specify CP 7129 on handy form, pages 2 and 3.

Details variable-ratio speed changer

Data sheet describes operation of a miniature, variable-ratio speed changer incorporating a push rod adjustment which requires a nominal maximum force of 6 pounds to operate at zero speed and at full load. Ratio is continuously variable from 1/6 to 6 by total travel of 0.375 inches of push rod.

Applications include timers, recorders, controllers, computers and similar low power devices requiring remote or automatic control. Technical Sheet 4C, Page 1, is issued by Metron Instrument Co., Dept. CP, 432 Lincoln St., Denver 9, Colo. When inquiring specify CP 7130 on handy form, pages 2 and 3.

Selection of electrical measuring devices

Information on "how to select" electrical measuring instruments is provided in a 30-page instrument booklet. Seven basic selection factors are explained; types of instruments available in each major classification are listed on a full-page check chart; and four typical selection problems are solved. Lines of portable, switchboard, panel, recording, and socket instruments are described and illustrated, and functions of each are explained. Descriptions of instrument auxiliaries are included. Booklet B-4696 is issued by Westinghouse Electric Corp., Dept. CP, Box 2099, Pittsburgh 30, Pa. When inquiring specify CP 7131 on handy form, pages 2 and 3.

For more information on product at left, specify CP 7132 ... see information request blank between pages 2-3.

NEW LITERATURE

Scrap need 36 million tons, says USDC booklet

Aimed to help increase the dangerously low iron and steel scrap inventories, the National Production Authority, U.S. Department of Commerce is distributing this 15-page booklet to more than 200,000 executives of business, industry and trade associations. Publication emphasizes that record production and large scale expansion have reduced inventories to an all-time low, with some plants having only a few days' scrap supply on hand. If the 1951 goal of 110,000,000 tons of steel ingots and castings is to be achieved, 36,000,000 tons of heavy industrial scrap must be found.

The drive is concerned with the recovery or salvage of "dormant" scrap which is defined as obsolete machinery and equipment, tools, dies, and fixtures, including items that are broken, worn, beyond repair, abandoned, or in need of parts that are no longer obtainable. In particular the drive is directed at those business and industrial executives who have the authority to determine what can be scrapped, order the disposal through normal channels and arrange to have the obsolete equipment written off. "Scrap for Steel Mills and Foundries for Defense" is issued by Department of Commerce, National Production Authority, Washington 25, D. C.

1952 edition details properties of organic chemicals

Latest edition of an annual issue is this 16-page booklet which covers the physical properties of synthetic organic chemicals. Data is presented on more than 300 products, 38 of which have been added this year. For easy reference, the chemicals are arranged according to these groups: alcohols, aldehydes, plasticizers, esters, acetals, ketones, ethers and oxides, glycol-ethers, anhydrides, acids, chlorine compounds, nitrogen compounds, aryl compounds, polyalkylene glycols and certain of the manufacturer's chemicals for special applications. "P.P.S.O.C." Booklet F-6136 is issued by Carbide and Carbon Chemicals Co., A Division of Union Carbide and Carbon Corp., Dept. CP, 30 East 42nd St., New York 17, N. Y. When inquiring specify CP 7133 on handy form, pages 2 and 3.

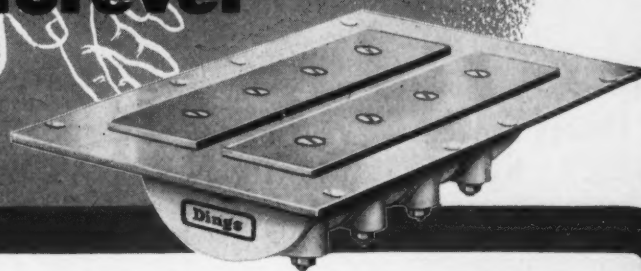
Attack magnesium flare fires from the front or side

One-page, illustrated sheet explains how burning magnesium flares can be extinguished with company's product, Met-L-X dry powder. Bulletin points out that conventional extinguishing agents in most cases will cause such fires to burn even more violently creating an unusual and dangerous fire hazard. In procedure cited to test effectiveness of product, the flare was laid on its side, the fuse ignited, and the fire allowed to burn for approximately one minute before extinguishment was attempted. Upon discharging the powder into the mouth of the flare, the fire was extinguished almost instantaneously.

Publication indicates that since the flare casing has a slower burning rate than the flare, the casing protrudes about an inch beyond the surface of the flare. This shields the burning magnesium somewhat. Therefore, correct technique involves approaching the flare from the front or slightly from the side and discharging the powder directly into the mouth of the flare. Technical Bulletin 27 is issued by Ansul Chemical Co., Fire Extinguisher Division, Dept. CP, Marinette, Wis. When inquiring specify CP 7134 on handy form, pages 2 and 3.

1,000,000 FINGERS*

that will work forever



They're specialized fingers that work only on the separation of magnetic substances — they keep iron out of substances in process . . . protect machinery against damage . . . prevent fires and explosions caused by iron sparks . . . they catch iron on the fly and hold it fast!

- ONE MILLION fingers able and willing to do a *real* iron removal job. It's the DINGS PERMA-PLATE MAGNET and its cost is very low. Think . . . how many places can you take advantage of a labor force like this! This force will work for you forever because the Perma-Plate is NON-ELECTRIC, guaranteed PERMANENT.

Other Qualifications:

The Perma-Plate Magnet handles solids or liquids, withstands high temperatures, and can be installed anywhere. Its magnetic strength is *certified*. There is a size and strength ideal for any job you have in mind. Get details now.

*That's the approximate number of lines of force emanating from the surface of a Dings Type II 30" wide Perma-Plate Magnet.

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World's Largest Exclusive Builders of Electric and Non-Electric Tramp Iron Magnets



When inquiring check CP 7135 on handy form, pgs. 2-3

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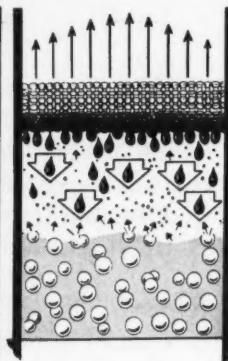
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ARE YOU
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METEX MIST
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... and see how they will help
boost production and cut costs



Removal of liquids entrained in gases is simple . . . economical . . . effective—when you use Metex Mist Eliminators! As the mixture passes through the Mist Eliminator, the entrained liquid is wiped out and retained by the extensive KNITTED wire area—until it coalesces into drops that are large

enough to fall back through the rising flow. The gas passes on—freed from entrainment.

Efficiencies 95% or better • Little if any pressure drop • Can be installed in existing equipment • Made of practically any metal • No moving parts

Worth looking into, isn't it? Ask for your free copy of "Metex Mist Eliminators", an 8-page brochure that's packed with facts. Or write us about your specific entrainment problem.

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KNITTERS OF WIRE MESH FOR MORE THAN A QUARTER CENTURY

659 East First Avenue Roselle, N. J.

When inquiring check CP 7137 on handy form, pgs. 2-3

NEW LITERATURE

Field welding of Al tanks — reprints available

Five-page reprint of an article from the July, 1951 issue of the Welding Journal describes the field welding of aluminum tanks. Material covers the erection procedure for a 200,000 gallon and six 30,000 gallon aluminum tanks. The welding sequence used to prevent distortion or warpage of the aluminum plates is discussed, and 21 photographs show each step during the erection of the tanks.

Technique used involved assembly of the roof portion first and then adding successively lower rings of the tank to it — as the entire unit is held over the rings. "Field Welding of Aluminum Tanks" is issued by Chicago Bridge & Iron Co., Dept. CP, 332 S. Michigan Ave., Chicago 4, Ill. When inquiring specify CP 7138 on handy form, pages 2 and 3.

Plunger sludge pumps detailed

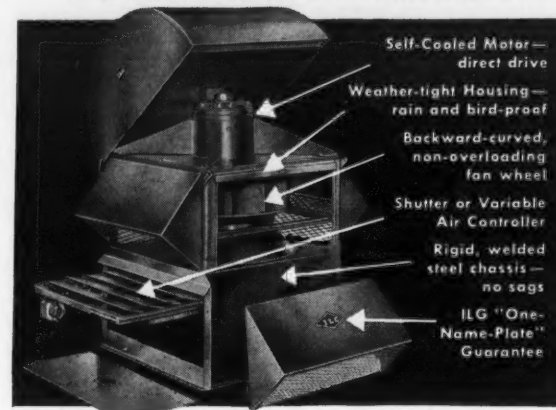
Equipment discussed in 16-page bulletin finds particular application in liquid processing operations and industrial waste treatment. Material includes detailed information, engineering data and specifications on manufacturer's complete series of plunger sludge pumps. Pump and motor selection charts and lubrication data are given, along with essential data on diaphragm pumps for general duty. Bulletin 5102 is issued by Ralph B. Carter Co., Dept. CP, 224 Atlantic St., Hackensack, N.J. When inquiring specify CP 7139 on handy form, pages 2 and 3.

Slide rule computes steam costs

Pocket size "slide rule" type calculator is designed for computation of steam costs. The calculator enables the user to compute the comparative steam costs per 1000 lb using coal, oil or gas. Basis is on costs of these fuels in terms of price per ton, per gallon and per cubic foot. Efficiency of the system is also taken into account.

On the reverse side is a slide giving information on the manufacturer's boiler equipment. Figures are expressed on such items as boiler horsepower, pounds of steam per hour, EDR steam in square feet (gross), oil consumption per hour and gas consumption per hour. "Steam Cost Calculator" is issued by Cleaver-Brooks Co., Dept. CP, Milwaukee 12, Wis. When inquiring specify CP 7140 on handy form, pages 2 and 3.

New ILG power roof ventilator



New "PRV" type for positive, controlled ventilation, regardless of wind or weather conditions, through vertical flues or duct systems. Get data—send inquiry card or phone nearby Branch Office. ILG Electric Ventilating Co., 2813 N. Crawford Ave., Chicago 41, Illinois.



FREE! Bulletin No. 1901

VENTILATION

When inquiring check CP 7141 on handy form, pgs. 2-3

ABBÉ ENGINEERING
Millings

VOL. 2 ABBÉ ENGINEERING CO. — NEW YORK, N. Y.

That's Interesting!

100% Scrap Recovery
Reversing Ceramic Casting Scrap
into Slip with the
Abbé Dispersall Mixer

Sifting a Cloud . . .

100% recovery of ceramic casting scrap with the Abbé Dispersall Mixer is described in the current issue of "Abbé Engineering Millings." Since this mixer can mix and disperse the scrap in any condition . . . wet, plastic or bone-dry . . . you should be interested in the kind of mixing and dispersing the Abbé Dispersall Mixer can do for you!

Easing the Job of the Textile Finisher . . .

Considering the great work which the Abbé Dispersall Mixer does, it is not surprising that it is used in many other industries. It is used for dispersing and mixing of all kinds of materials, from the finest powders to the heaviest lumps. It is used for dispersing and mixing of all kinds of materials, from the finest powders to the heaviest lumps. It is used for dispersing and mixing of all kinds of materials, from the finest powders to the heaviest lumps.

We'll be glad to send you a copy of this issue of "Abbé Engineering Millings," and to put your name on the mailing list to receive future numbers.

ABBÉ ENGINEERING CO. 46 CHURCH STREET
NEW YORK 7, N. Y.
Makers of
ABBÉ ENGINEERING Ball, Pebble and Jar Mills

When inquiring check CP 7142 on handy form, pgs. 2-3

CHEMICAL PROCESSING

NEW LITERATURE

Features electrode holders and other welding equipment

Electric welding cable connections and accessories are items described and illustrated in this 12-page bulletin. Specifications and prices are given for electrode holders, ground clamps, cable connections, cable splicers, terminal connections, solder and mechanical type cable lugs, and a block and punch for attaching solder lugs mechanically. Twecolog 8 is issued by Tweco Products Co., Dept. CP, P.O. Box 666, Wichita 1, Kan. When inquiring specify CP 7143 on handy form, pages 2 and 3.

Volume 7 of chemical encyclopedia covers furnaces to iolite

Edited by Raymond E. Kirk and Donald F. Othmer of Polytechnic Institute of Brooklyn, the "Encyclopedia of Chemical Technology" presents a diversity of topics of special interest to the chemist (manufacturing and research), chemical engineer and personnel in related fields. Volume 7, reviewed here, contains 982 pages and includes furnaces to iolite. Subjects are accorded treatment, in general, with respect to their chemical implications and contain recent advances and information. For example, material on hormones discusses physiochemical properties, assay and isolation methods but mentions only briefly the physiological implications and uses. Also, bibliography sections are confined largely to recent sources.

As an indication of the amount of material devoted to certain topics, the following gives the number of pages: glycols—25, hormones—69, instrumentation—19, hydraulic systems—13, glass—32 and gas warfare agents—28. Subject matter on individual organic and inorganic chemicals is organized so that properties, methods of laboratory and commercial preparation, analytical procedures, uses and economic aspects are discussed. Flow diagrams, structural formulas, tables of properties and illustrations are included where pertinent. Typical of tabular material given in this volume is a table of physical properties of 28 commercial glasses and a 13-page table on toxic effects of important industrial chemicals.

Other topics detailed in this volume are: gas cleaning and purification, gelatin, glue, Grignard reaction, gums and mucilages, heat transfer, hydrazines, hydrocarbons, industrial hygiene and iodine compounds. To obtain "Encyclopedia of Chemical Technology", Volume VII, remit \$25 direct to Interscience Publishers, Inc., Dept. CP, 250 Fifth Ave., New York 1, N. Y. When inquiring specify CP 7144 on handy form, pages 2 and 3.

Gives charts on steam capacity and gas volume-per-weight

In addition to safety valve specifications, 15-page bulletin includes charts showing the capacity required from safety valves to give 100% protection in case of pressure reducing valve failure. Also shown is a gas volume-per-weight chart for determining the cu ft/lb of gases with various specific gravities at various pressures and temperatures. Many models of manufacturer's safety valves are illustrated with cutaway views, together with tables of available sizes and connections. Other tabular material gives valve capacities in steam, air and 0.6 sp gr gas at various pressures. Bulletin 851 is issued on letterhead request to Marine and Industrial Products Co., Dept. CP, 1150 W. Marquette Rd., Chicago 21, Ill. When inquiring specify CP 7145 on handy form, pages 2 and 3.

OCTOBER, 1951

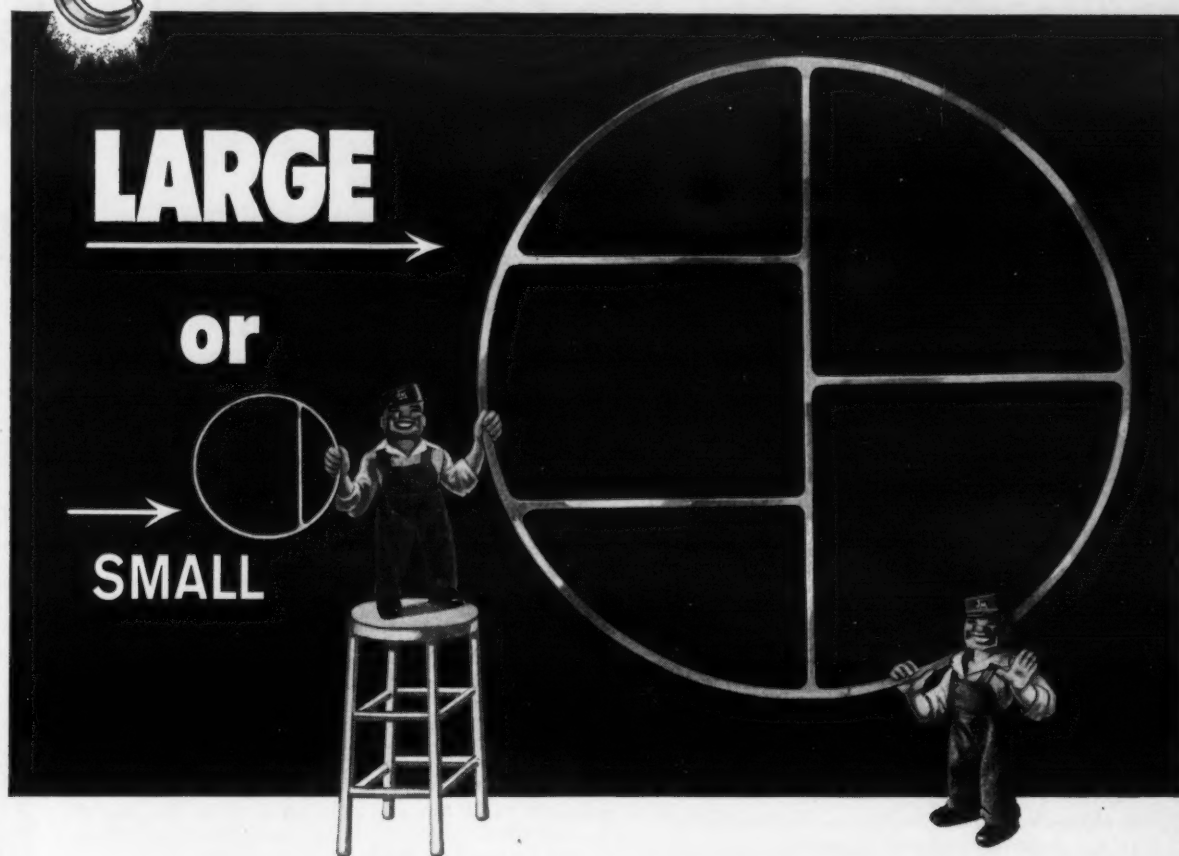


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Whether your requirements call for heat exchanger gaskets larger than 100" in diameter, or smaller than 10", you can get the exact size you want... hand-tailored to the shape you need... simply by specifying "Johns-Manville Goetze."

And because they're *precision-made*, you'll find these better gaskets provide the effective sealing and longer life that make them actually cost less in the long run. Each gasket is carefully constructed in every detail to assure accuracy of fit

... to provide ample lap widths and uniform rib widths... and to prevent trouble-making wrinkles or cracks on the corners.

If you're having trouble with persistent joint leakage and frequent gasket replacements, find out how little it costs to have Goetze Heat Exchanger Gaskets tailored to your requirements. Your blueprint or template will bring a prompt estimate. Address Johns-Manville, Box 290, New York 16, New York.



Johns-Manville *Goetze* GASKETS

THERE'S A JOHNS-MANVILLE PACKING AND GASKET FOR EVERY SERVICE

When inquiring check CP 7146 on handy form, pgs. 2-3



Making Tap Blades at Kuhns Bros.

"K" on a fitting means accurate machining

Many of the tools for the machining of "K" Fittings are made in our own plant. We also design and build much of the special machinery required.

The machining of screwed fittings calls for extreme care and precision. Hundreds of taps have to be kept in first-class condition to chase threads full and clean. Fixtures have to be exact in order to maintain accurate alignment to agree with the angularity of fittings. Openings must be properly chamfered so pipes will enter easily—also to protect the outer threads.

Still more extensive machining is involved in the finishing of "K" flanged fittings. Here also dimensions must be held to close tolerances, and correct alignment maintained. Here also faces have to be accurately milled to make tight joints, and bolt holes properly spaced to speed make-up.

The accurate machining of "K" Fittings saves installation time, assures symmetry in the piping system, assures leakless connections.

Specify "K's" when you order fittings from your supplier.

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1808 McCall Street
Dayton 1, Ohio

Established 1887

CAST-IRON FITTINGS

3,000 Shapes and Sizes

When inquiring check CP 7147 on handy form, pgs. 2-3

Spinning to Final Packaging of Rayon Yarns Is Single, Continuous Operation

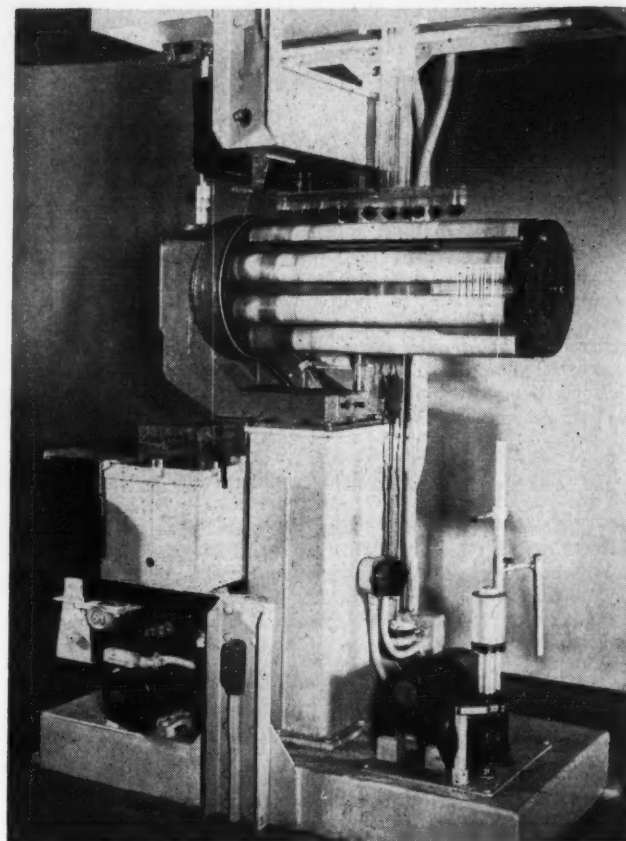
Production rates are 50% higher than with conventional methods; said to do in 3 minutes what usually takes 4 days

USES: Complete spinning and processing unit for rayon yarn — spins it by a continuous method, and regenerates, desulfurizes, bleaches, dries, twists (if desired), and finally packages it.

Features: Maker reports that production rates are 50% higher than with conventional methods of spinning rayon yarn. Said to do in 3 minutes what usually takes 4 days.

Description: The Kuljian unit is suitable for spinning and processing all commercial viscose and cupra yarns ranging from 50 to 1100 denier. A pilot plant unit has produced yarn of 1 denier. Yarn may be bleached or unbleached, may range from dull to bright, and can be soft-finished for knitting purposes. Either an S or Z twist may be applied to the yarn immediately after drying, or it may be taken from the unit untwisted. Oiling or sizing can be accomplished.

Flexibility of the unit allows production of rayon yarns with wide range of commercial applications and characteristics. For example, rayon yarns for textile apparel fabrics require high elongation, medium tensile strength, low shrinkage, and uniform dyeing qualities. On the other hand, rayon automobile tire cord and other industrial yarns require primarily low elongation and high tensile strength, with shrinkage and uniform dyeing characteristics of secondary importance. These varying combinations are all possible on the Kuljian unit. Because spinning and all processing are accomplished on a single unit, damage to yarn caused by its usual trans-



Complete unit for spinning and processing rayon yarns

fer from operation to operation are avoided. For this same reason, plant space is saved — not to mention savings that can be made in material and power consumption per pound of yarn produced.

Source: Development of the Kuljian Corporation, Dept. CP, 1200 N. Broad St., Philadelphia 21, Pa. . . or for more information check CP 7148 on handy form, pages 2 and 3.

Tells which way wind's blowing — and at what speed . . .

portable system energized by own battery supply; two anemometer speed ranges: 0 to 10 and 0 to 30 mph

Uses: Provides accurate recordings of wind direction and wind speeds from a threshold below 1 mph to 30 mph. Because of the portability of the equipment, its freedom from critical adjustments, and sealed, permanently lubricated moving parts, system is suggested for such field

microclimatic studies as agricultural, smog surveying and investigations of the light winds which have major influence on the build-up of effluents from smokestacks and other sources of industrial contamination.

Features: Unit is energized by its own battery supply and weighs but 100 lb with batteries. A special keep-alive output circuit improves pen response for optimum tracing precision.

Description: Speed and direction recordings are made

on separate standard pen-type 0 to 1 millimeters which, because of their general availability, are not supplied in the standard system. High resolution of output data permits wide choice of recorder chart speeds with great flexibility in the quantity of detail obtainable. Two anemometer speed ranges are provided: 0 to 10 and 0 to 30 mph.

Source: Climate survey system is built by Beckman & Whitley, Inc., Dept. CP, 960 San Carlos Ave., San Carlos, Calif. . . . or for more information check CP 7149 on handy form, pages 2 and 3.

Major function of incinerator is burning dry rubbish . . .

unit can also handle moderate amounts of wet refuse if sufficiently mixed with the dry material

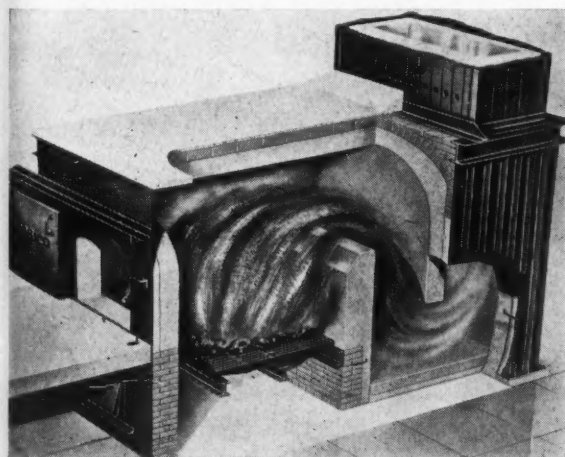
Uses: Incinerator for the disposal of predominantly dry waste such as paper, cartons, floor sweepings, rags, wood scrap, and other readily combustible rubbish. However, unit will handle moderate amounts of garbage and other wet refuse if it is mixed with enough dry material.

Features: Incinerator is available in 4 standard sizes that meet requirements of most industrial plants.

Description: Unit is specifically engineered for rapid burning action of dry rubbish. Table below shows ratings and dimensions of the 4 standard sizes. Capacity ratings are in pounds of average dry rubbish consumed per hour of operation. Dimensions do not include space required for the charging door, or for opening the clean-out doors.

Model	Capacity	Width	Length	Height
5R	500	5' 8"	11' 4"	7' 3"
12R	1200	7' 10"	14' 6"	8' 1"
22R	2200	8' 10"	16' 0"	9' 2"
35R	3500	10' 4"	19' 0"	9' 8"

Furnace design features an elliptical curved arch to reflect and radiate the heat to the entire firebed. The deflecting arch behind the bridge wall provides the turbulence and long flame travel needed for proper combustion. Refrac-

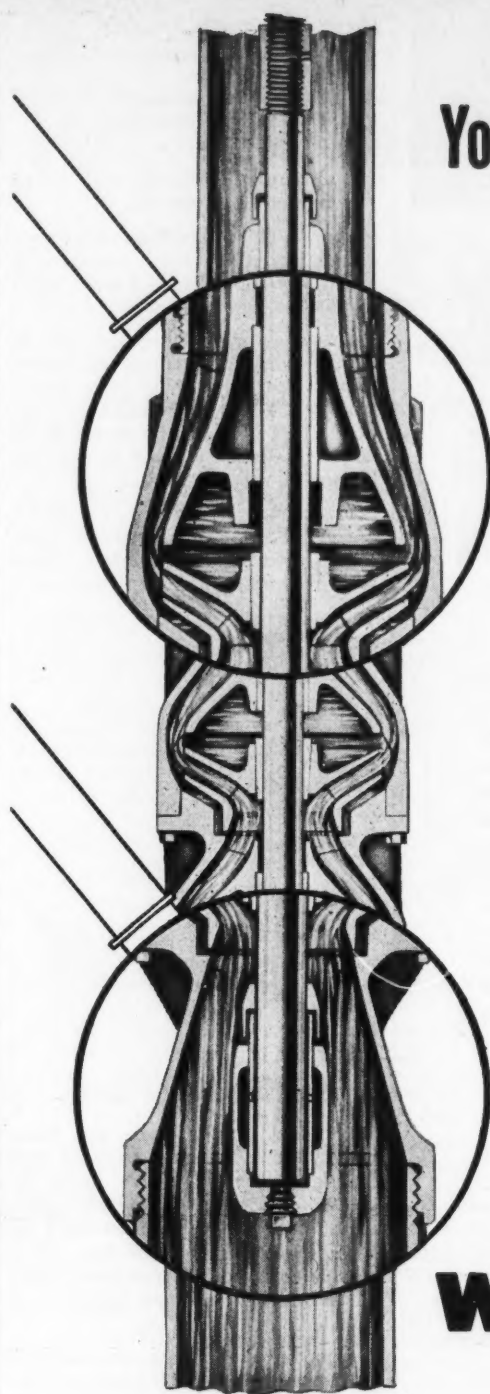


Cutaway drawing shows internal layout and structural features of dry rubbish incinerator

tory lining is monolithic; its air-tight qualities promote high furnace temperatures. Inclined grate allows incinerator to be charged with a large volume of rubbish.

Burning rate is controlled by opening or closing the ashpit doors. Large stack area avoids the danger of flame and smoke issuing from charging doors when they are opened.

Source: Standard Rubbish Destructor is manufactured by Plibrico Jointless Firebrick Co., Dept. CP, 1800 Kingsbury St., Chicago 14, Ill. . . . or for more information check CP 7150 on handy form, pages 2 and 3.



You Can't Lose Your Bearings

when you follow the tip
to buy **WORTHINGTON**

When you buy a vertical turbine pump, be sure the top and bottom bearings are well protected.

Here's the protection Worthington gives the bearings of its pump—better protection than you'll find in any other vertical turbine pump.

Bottom bearing. It's grease-packed and won't need attention for the life of the pump. Tests of grease-packed bearing versus rubber bearing show the advantage greatly in favor of the former.

Top bearing of oil-lubricated models. Seals above and below the drain ports keep out abrasives which would cause wear and damaging vibration. They also prevent water from entering the tube, which could cause emulsification of the oil and accelerated wear of the line shaft—a Worthington exclusive.

Sand collars. In water-lubricated models, sand collars at both ends of bowl assembly provide further protection by keeping abrasives away from the bearings.

Worthington Vertical Turbine Pumps are available in sizes from 6 in. up, to handle liquids at temperatures of minus 7F. to 500F., with maximum head per stage over the entire size range.

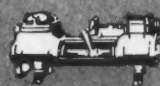
For other Worthington exclusives—such as flanged and bolted bowls in *all* sizes—write to Vertical Turbine Pump Division, Worthington Pump and Machinery Corporation, Harrison, New Jersey or Denver 16, Colorado.

WORTHINGTON

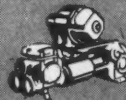


THE WORLD'S
BROADEST LINE
ASSURES YOU THE
RIGHT PUMP FOR
EVERY JOB

Steam



Power



Rotary



Vertical Turbine



Centrifugal



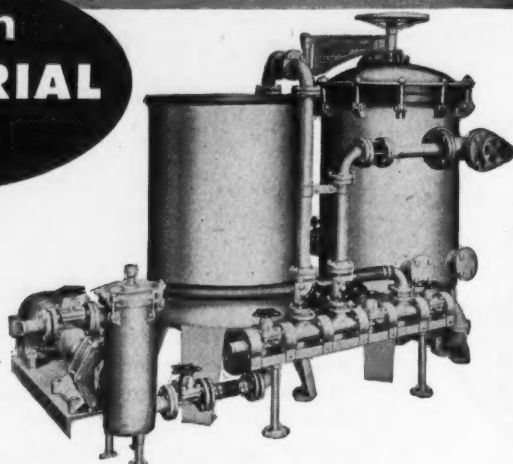
D.1.9

When inquiring check CP 7151 on handy form, pgs. 2-3

Solution Clarification? Any Solution-Any Quantity

use an
**INDUSTRIAL
Filter**

100 to 15,000 gallons per hour.
Portable and stationary models.
Standard or special filtration
systems engineered to meet
unusual requirements.



You save many ways . . .

Here's how Industrial filters keep down filtration costs—The flow rates of Industrial filters are based on the solutions involved. You know the capacity you get. With Industrial you get an adequate filter with slurry tank, motor driven pump, valves and fittings in a complete package with one, undivided, experienced responsibility—with space requirements at a minimum.

The labor, down time, and the inconveniences of cleaning, replacing the filter media, and reassembling the filter for every new filter cycle—all are eliminated by the Industrial Air-Wash Cleaning Method available for all models. It is necessary to remove the cover only when new filter cloths are installed.

The engineering, design, and construction of Industrial filters have proved out in long service and low maintenance costs. Industrial has the experience and is large enough to handle your filter requirements. Since 1927 filters and filtration systems have been an important part of our business.

**INDUSTRIAL
Water
Demineralizers**

for Chemically pure water at
a few cents per 1000 gallons.

Write for full information
and recommendations

INDUSTRIAL FILTER & PUMP MFG. CO.

5908 W. Ogden Ave.
Chicago 50, Illinois

FILTERS Pressure Type	PUMPS Centrifugal	CORROSION TESTING APPARATUS Salt Fog • Humidity
RUBBER DIVISION Vulcanized Linings • Molded Products	WATER DEMINERALIZERS	

When inquiring check CP 7152 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

**Gas conversion burners
adjust to rectangular or
round fireboxes . . .**

also made in model with lower
burner head position

Uses: This conversion burner
(listed by AGA) has a natural and
mixed gas input range from 75,000
to 265,000 Btu per hour.

Features: Adjustable for use in
either round or rectangular fireboxes,
burner also is available in a special
model with a lower burner head posi-
tion. This is said to be an advantage
when installation is made in wet base
boilers.

Description: Standard burner,
model NGC-265 and special type,
model number NGCW-265, come
with red baked enamel finish on a



Conversion burner input range
75,000 — 265,000 Btu per hour

heavy steel burner duct. An auto-
matic safety pilot and a solenoid type
electric gas valve (both made by
White-Rodgers) are standard equip-
ment. Manual operation in event of
power failure is provided for, and a
heat anticipation thermostat (Min-
neapolis-Honeywell type TM81C) is
included.

Air controls in burner are designed
to make primary and secondary air
adjustments independent of each
other, plus being unaffected by re-
moving or replacement of the burner
cover.

Other standard equipment includes a
stainless steel flame diffuser, gas pres-
sure regulator, burner shutoff valve
and pilot cock. The assembled burner
and standard controls are shipped in
corrugated carton. Shipping weight
is about 32 lb.

Source: National Radiator Com-
pany, Dept. CP, Johnstown, Pa. . . .
or for more information check CP
7153 on handy form, pages 2 and 3.

OMEGA

THE LAST WORD IN FEEDERS . . .

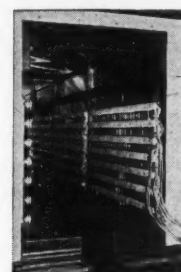
— for dry materials . . . sea coal, trap
rock, Vinylite, hydrated lime, zinc
hydrosulphite, activated carbon—and
liquids . . . acids, chemical solutions,
and suspensions. For Bulletins and
complete information, address Omega
Machine Company (Division of Build-
ers Iron Foundry) 387 Harris Ave.,
Providence 1, R. I.

OMEGA MACHINE COMPANY

When inquiring check CP 7154 on handy form, pgs. 2-3

Electric Heat With a Guarantee!

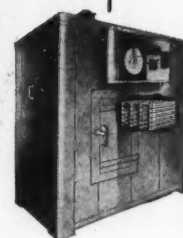
**For OVENS and
FURNACES**



"Folded-and-Formed"
Heating Elements cover-
ing entire work area in
straight convection oven.



Custom-built insulated
plug with "F-and-F"
Heating Elements at-
tached, in air circu-
lating oven.



Standard "Folded-and-
Formed" racks in batch
type air circulating
oven.

Standard racks—1.5 to 7.5 K. W.—made in
12" x 12" sections are used vertically or
horizontally, singly or in multiples, to pro-
vide any desired total K. W.

Custom-built racks available in
wide variety of sizes, up to 600
K. W. in one bank.

Special racks, up to 10' high by
10' long, with any required
K. W. per square foot of sur-
face area.

TRENT INC.
Electrically Heated Industrial Equipment
235 LEVERINGTON AVE. PHILA 27 PA.

When inquiring check CP 7155 on handy form, pgs. 2-3

CHEMICAL PROCESSING

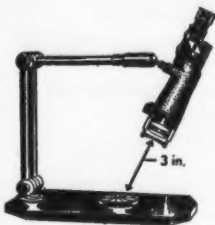
PROCESSING EQUIPMENT

Work can be carried on under microscope . . .

swings freely in any direction with joint tension of mount fully adjustable in any direction

Uses: Especially suited for bench and laboratory use.

Features: Facilitates examinations from any angle with far more working space for the viewer. Prism erectors give viewer an erect image — exactly as the eye sees it — not upside down. Working distance from objective to object is almost 3", which permits work — dissection, tooling — to be carried on while looking through the microscope.



Universal-mount microscope

Description: Eye-piece provides precision focusing. 3-element color-corrected objective is 1" diameter. Microscope body is brass with black crackle finish. Instrument is 6½" long; base 7 x 9".

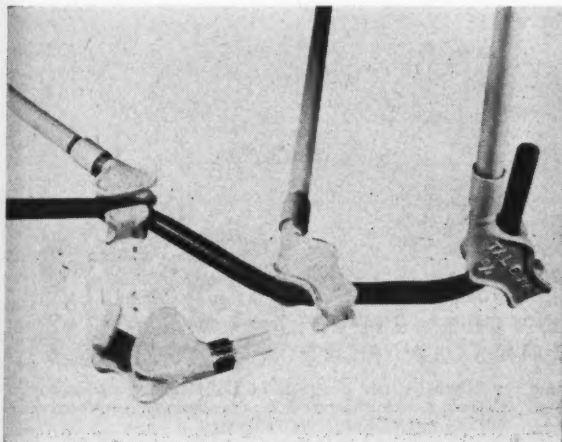
Source: 35-power erecting microscope is available from Edmund Scientific Corp., Dept. CP, Barrington, N. J. . . . or for more information check CP 7156 on handy form, pages 2 and 3.

Elbows, bends, sets, tubes, loops, made on open or slab work with 6-way bending tool . . .

operates in close quarters; stub hole permits easy bending of conduit extending from concrete walls

Uses: For making bends, elbows, sets, offsets, loops, saddles and studs on open or slab work, and in close.

Features: Stub hole has been devised for bending or straightening conduit protruding from concrete floors or walls. Long safety neck extends into the pipe handle,



6-way bending tool operates in close quarters

making tool danger-proof against hazards of pipe handle breaking.

Description: Tool can be used in six different directions. Sure grip jaws guard against hazard of pipe slipping during bending operations.

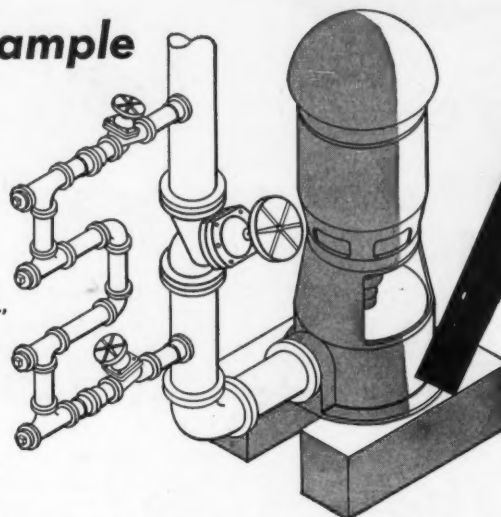
Source: 6-way Hickey is built by Tal Bender, Inc., Dept. CP, Milwaukee 2, Wis. . . . or for more information check CP 7157 on handy form, pages 2 and 3.

OCTOBER, 1951

for outstanding service

on Corrosive Well Water

...for example



The Installation—
Barr Rubber Products Co.,
Sandusky, Ohio

...Choose
Dependable

CRANE VALVES



No. 1611 Crane Iron Body Diaphragm Valve
—one of a full line suited for many services.

Literature on request
from your Crane Branch or Crane Wholesaler.

PROBLEM: To eliminate costly seating and packing maintenance, and frequent replacement of valves on plant well-water pump. Valves previously used highly unsatisfactory, having maximum life of 6 months.

WORKING CONDITIONS: Sulphur content of water extremely high. Valve constantly exposed to severe corrosive and erosive effects. Operated infrequently; yet easy operation, positive seating are prime requisites.

SOLUTION TO PROBLEM: Crane Packless Iron Body Diaphragm Valves featuring separate disc and diaphragm design. Three-inch No. 1611 flanged end valve on main discharge; ¾-inch No. 1610 screwed end valves on by-pass.

RESULT: While other valves lasted only 6 months or less, Crane Diaphragm Valves show no effects of service, after more than a year. They operate smoothly . . . seat tightly . . . no maintenance whatsoever needed to date!

Another typical demonstration of superior quality,
and the low-cost performance of Crane Valves. That's why . . .
More CRANE VALVES are used than any other make!

CRANE CO.

VALVES • FITTINGS • PIPE • PLUMBING • HEATING

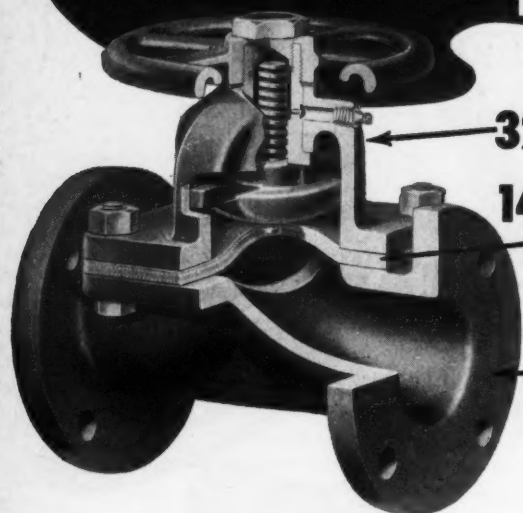
When inquiring check CP 7158 on handy form, pgs. 2-3

General Offices:
836 S. Michigan Ave., Chicago 5, Ill.
Branches and Wholesalers Serving
All Industrial Areas

Hills-McCanna offers

Over 20,000

**different assemblies
for valving "hard-to-handle"
fluids**



32 Bonnets

**14 Diaphragm
Materials**

**49 Body
Materials**

All the various possible combinations of bonnet assemblies, diaphragms and body materials available in Hills-McCanna valves total over 20,000! True, many of the combinations would not be practical, but this figure does indicate the tremendously wide variety of valves that Hills-McCanna offers. No matter how specialized your problem of valving corrosive and/or hazardous substances, slurries, viscous liquids, gases, fermentation products, materials subject to coagulation, foods or beverages, the chances are that Hills-McCanna can furnish the proper valve to meet your needs.

Hills-McCanna valves are Saunders patent diaphragm valves wherein the closure is affected by pressing a resilient diaphragm against a transverse weir. Working parts are isolated from the flow. The valve is leak-tight and requires no packing. Sizes from $\frac{3}{8}$ " to 14".

Write, today, for full information and descriptive literature, HILLS-McCANN CO., 2370 W. Nelson St., Chicago 18, Ill.

HILLS-McCANN

Saunders patent diaphragm valves

Proportioning Pumps

Force-Feed Lubricators • Magnesium Alloy Castings

When inquiring check CP 7159 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

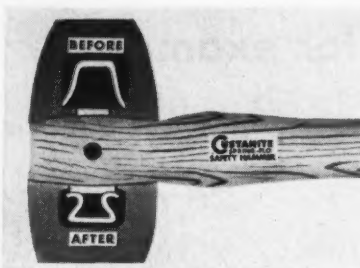
**Ribbon springs in head
improve performance
of safety hammer . . .**

won't chip, spark, or mushroom under heavy use

Uses: "Soft" safety hammer.

Features: Warranted not to chip, spark, mushroom, or fly off the handle, even under heavy use.

Description: Hammer is made of alloy possessing high degree of tensility; hardened high-carbon ribbon steel springs are contained in the head.



"Soft" safety hammer

Combination results in a controlled flow of metal in hammer head. Hammer retains its original weight and balance because no metal is lost.

Source: Custanite Spring-Flo safety hammer is made by Charles Budd Corporation, Dept. CP, New Rochelle, N.Y. . . . or for more information check CP 7160' on handy form, pages 2 and 3.

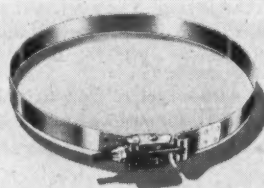
**Quick-open latch is
part of clamp . . .**

all-stainless item will be made to suit requirements

Uses: Clamp for hose connection. Designed especially for connections frequently made and broken.

Features: Hinged latch is new, permits quick assembly or disassembly. Clamp is all stainless steel.

Description: Series-21 Quick



Coupling Clamps will be made to specification at the present time.

Source: Specialty Products Company, Dept. CP, 1965 E. 66th St., Cleveland 3, Ohio . . . or for more information check CP 7161 on handy form, pages 2 and 3.

**UNEQUALED IN
FILTERING CHEMICALS**

**for— HIGH FLOW RATES
LESS DOWN TIME
POSITIVE CAKE STABILITY
QUALITY, SPEED AND ECONOMY**

**SPARKLER
FILTERS**

Available in

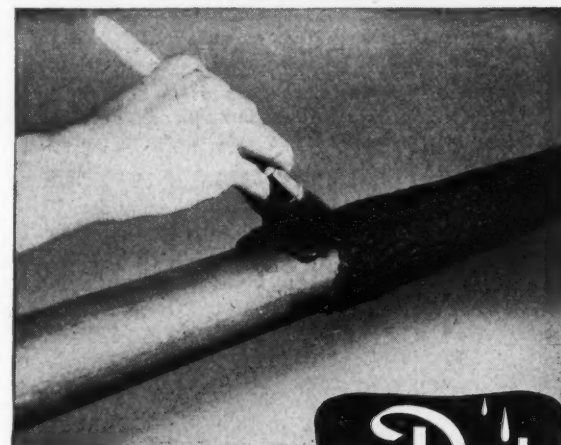
stainless steel
mild steel
rubber lined
monel, nickel
bronze, Hastelloy
steam or brine
jacketed



Write Mr. Eric Anderson for personal service on your engineering problems.

SPARKLER MFG. COMPANY, Mundelein, Illinois

When inquiring check CP 7162 on handy form, pgs. 2-3



**COVERS PIPES
TANKS, WALLS**

Anyone can brush, trowel or spray NoDrip on any clean, dry surface. Goes on like plaster, forms a seamless, protective coating. **STOPS CONDENSATION DRIP!**



NoDrip keeps equipment and floors safe and dry; prevents corrosion of metal and prolongs its life. Acid, alkali and brine resistant. Comes in 1, 5, and 55 gal. drums, ready for use.

TRY NoDRIP

Apply NoDrip to a small area, compare the results with uncovered portions.

Send for free NoDrip Handbook
J. W. MORTELL CO., 530 Burch St., Kankakee, Ill.

When inquiring check CP 7163 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

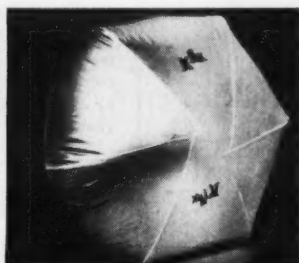
Non-priority film well suited for use as pre-formed drum liners . . .

excellent combustion of properties makes vinyl film useful with frozen, volatile, or non-fat products

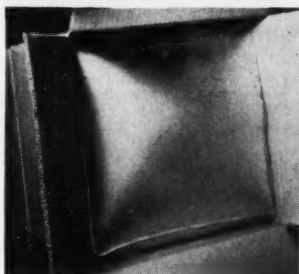
Uses: Providing ample protection for almost any product except fats, it can be used to hold liquids. When made up into pre-formed liners, it meets ICC drop test successfully.

Features: Film is impermeable to water and air as well as completely resistant to the corrosive action of several acids, salts, and other chemicals. Water vapors and dissolved materials do not pass through this film which can even be used for storing and shipping alcohol and similar materials.

Description: Completely non-toxic, K-flex DV film is especially suitable as container material because of its



Views of top and bottom of pre-formed liner for cylindrical containers are shown above. Note pouring spout



At left is shown prefabricated liner for square paperboard containers

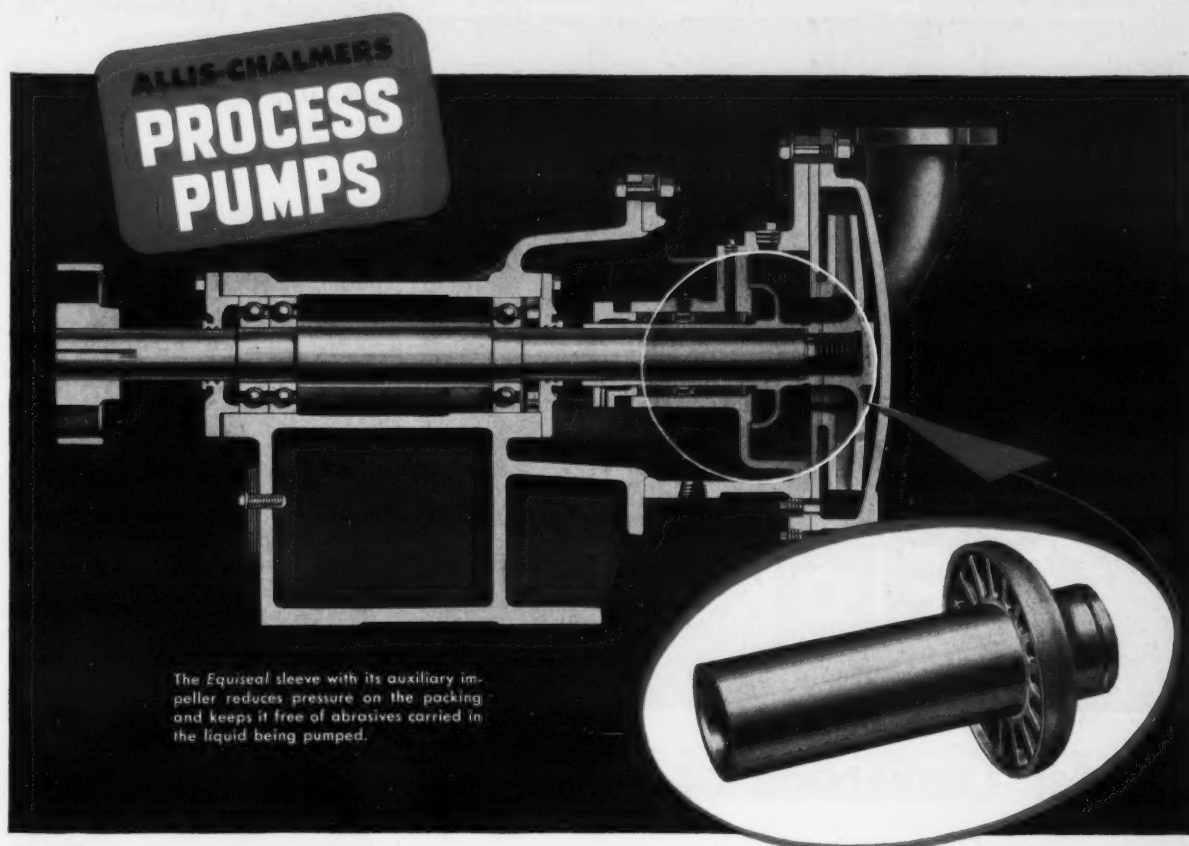
low temperature flexibility, and water vapor resistance. This vinyl film is, in itself, odorless and tasteless and no outside odors or vapors can penetrate it to contaminate any packaged article.

K-flex DV is tough and durable. It has a characteristic golden tan color, but is sufficiently translucent to clearly show the product or materials packaged in it. Competitive in price with other plastic films, this material is currently available *without priority*. Hot pouring up to 300°F is possible; yet the film remains flexible and does not craze or crack at temperatures as low as minus 40°F. Its tensile strength is 3000-3500 psi; elongation is 200%.

The heat sealing properties of K-flex DV have led to the development of pre-formed liners. Heat sealed seams made with conventional or electronic equipment are stronger than the sheet itself. By tailoring liners to fit boxes, cartons, or other receptacles, a container can be made which will carry water or semi-solids and which meets the ICC drop test.

Illustrations show carton and drum liners — one of which embodies a pouring spout. It is also possible to seal large drums and other containers with the film.

Source: Both the film and pre-formed liners are developments of R. L. Kuss & Company, Dept. CP, P. O. Box 586, Findlay, Ohio . . . or for more information check CP 7164 on handy form, pages 2 and 3.



The Equiseal sleeve with its auxiliary impeller reduces pressure on the packing and keeps it free of abrasives carried in the liquid being pumped.

How To Keep Abrasives Out of the Stuffing Box

YOU CAN ELIMINATE abrasives-in-the-stuffing-box problems with an Allis-Chalmers Process Pump equipped with *Equiseal* stuffing box. This stuffing box arrangement consists of an auxiliary impeller like the one shown which produces a low pressure area in front of the packing. On all suction lifts and on suction heads up to fifteen feet, this pressure is zero. *None of the liquid being pumped enters the stuffing box.* None of the abrasive carried by the liquid enters the stuffing box.

NO LEAKAGE

The *Equiseal* stuffing box is so efficient that no leakage whatever occurs with

suction head as high as fifteen feet. Where the suction head is more than fifteen feet, the head at the packing is reduced by that amount. Penetration of the packing by abrasive bearing liquid is reduced. Sleeves and packing last much longer.

The *Equiseal* stuffing box can be added to your present Allis-Chalmers Process Pumps.

If you pump corrosives or abrasives, you should know about the Allis-Chalmers Process Pump with *Equiseal* stuffing box. Ask your Allis-Chalmers Authorized Dealer or District Office, or write Allis-Chalmers, Milwaukee 1, Wisconsin. Ask for Bulletin 08B6615.

Equiseal, Texrope and Vari-Pitch are Allis-Chalmers trademarks.

ALLIS-CHALMERS

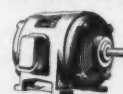
When inquiring check CP 7165 on handy form, pgs. 2-3

Sold . . .

Applied . . .

Serviced . . .

by Allis-Chalmers Authorized Dealers, Certified Service Shops and Sales Offices throughout the country.



MOTORS — ½ to 25,000 hp and up. All types.

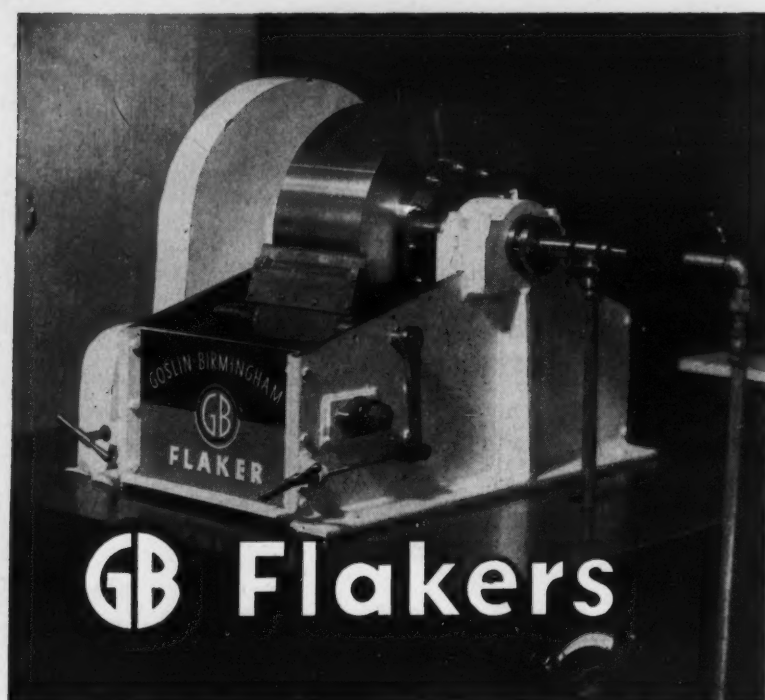
CONTROL — Manual, magnetic and combination starters; push button stations and components for complete control systems.



TEXROPE — Belts in all sizes and sections, standard and Vari-Pitch sheaves, speed changers.



A-3474



for Conversion of Molten Materials to Finished Products

GOSLIN-BIRMINGHAM engineers have solved conversion problems for many plants by the application of one or more GB Flakers. Many materials which are produced in molten form can be converted profitably to finished products by flaking.

This all stainless steel research flaker has been installed by GB in its laboratory for the purpose of determining the flaking characteristics of customers' materials. Experienced GB process engineers are prepared to discuss your flaker applications and conduct flaker tests of your materials on this equipment without cost or obligations. Your inquiries are invited.

GOSLIN-BIRMINGHAM
MANUFACTURING CO., INC.

BIRMINGHAM, ALABAMA

CHICAGO: F. M. deBeers and Associates, 20 N. Wacker

When inquiring check CP 7166 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

**Molded all as one piece,
polyethylene bottles
are light . . .**

weigh less than half as much as same capacity bottle in glass

Uses: Larger sizes now available extend usefulness to shipping of ordinary chemicals, acids, and sundry liquids where very large quantities are not involved.

Features: Made in one piece, these bottles are available in 1 and 2 gal sizes. They will not break, even if the contents freeze.

Description: Bottles are blow molded in one piece. This achieves a weight saving over the already light



One and two gallon one-piece bottles

conventional two-piece polyethylene bottle. The two-gallon polyethylene bottle weighs only 2.32 lb compared with 6.07 for the same capacity glass bottle.

Source: Development of Plax Corp., Dept. CP, Hartford, Conn. . . or for more information check CP 7167 on handy form, pages 2 and 3.

**Extra large selenium cells
are available for duty
at high amperage . . .**

single units up to 12-3/8 x 16" are now stocked

Uses: Conventional dry cell selenium rectifiers with high DC capacity.

Description: Extra large selenium cells are made by a vacuum process. Larger units permit use of fewer parallel circuits, thus reducing weight. Individual rectifier blocks run from 1 x 1" to 12-3/8 x 16".

Source: Manufactured by Syntron Company, Dept. CP, 110 Lexington Ave., Homer City, Pa. . . or for more information check CP 7168 on handy form, pages 2 and 3.

Q.

How can steam pressure be converted into suction pressure?

A.

With an I-R STEAM-JET EJECTOR



A steam jet, discharging into a venturi-shaped diffuser, creates suction pressures down to 3" Hg absolute. Two or more ejectors in series can supply pressures as low as .002" (50 microns)—for evacuating any type of air, gas, and vapor mixture, in any desired capacity. Pre-coolers, inter-condensers and aftercondensers can be supplied as required for any application.

I-R Steam-Jet Ejectors are simple, dependable, economical. No moving parts—no lubrication—no vibration—no maintenance. Rugged construction, with one-piece stainless steel steam nozzles and accurate alignment of nozzle and diffuser assure sustained high efficiency year after year.

Send for free Bulletin 9013A.

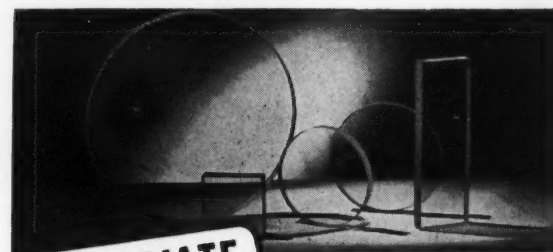
683-4



11 Broadway
New York 4, N. Y.

Ingersoll-Rand

When inquiring check CP 7169 on handy form, pgs. 2-3



**IMMEDIATE
DELIVERY**

**on Pyrex
HEAT RESISTANT
SIGHT GLASSES**

Now you can get **Sight Glasses** without delay cut or ground in any shape from PYREX Heat Resistant Polished Plate Glass—for use on ovens, absorption columns, evaporators, stills, pressure vessels—wherever heat resistant glass is desirable.

These heat-resistant **Sight Glasses** resist clouding and pitting, as well as all chemicals except HF and strong, hot caustic solutions. Special cutting and grinding equipment enables Swift to supply **Sight Glasses** in rounds, squares, rectangles, odd shapes in 8 different thicknesses, from 1/8" to 1" and in any size that can be made from a 24" x 60" plate. Write, wire, phone for quotations. Bulletin on request.

SWIFT LUBRICATOR CO., INC.

31 West 14th Street • Elmira, New York

When inquiring check CP 7170 on handy form, pgs. 2-3

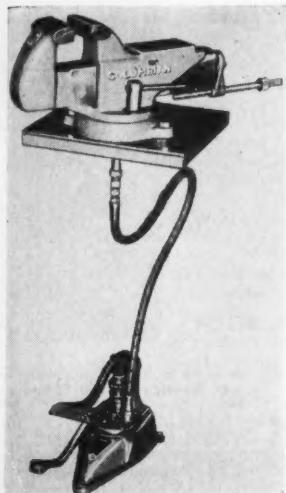
CHEMICAL PROCESSING

PROCESSING EQUIPMENT

Foot pedal powers hydraulic vise, freeing operator's hands for other work . . .

4-inch jaws can exert 2 tons to hold piece, or can be used on light castings, machined surfaces, etc.

Uses: Fast operating machinists' vise can be profitably used where very accurate setting in vise is needed, or where repetitive operations of vise consume considerable time.



Features: Hands are completely free, since both opening and closing of vise are controlled by foot pedal. Opening or closing can be done at rates and pressures which will not damage machined surfaces or light castings, but up to 4000 lb are available if needed.

Description: Weighing 80 lb, the #1004 vise is similar to earlier models except that it is larger and heavier. A maximum of 7000 psi can be generated with the foot pedal of the hydraulic system. At this pressure, the jaws have their maximum 2 ton force. Vise can be closed at the rate of

Vise can be completely opened in 3 seconds

7/8" per stroke and can be fully opened in 3 seconds. Illustration shows pumping and reversing pedals. Stop control is also visible. This permits opening of the vise to a controlled point so that production work can be gripped and held with a single stroke.

Source: Development of The Columbian Vise & Mfg. Co., Dept. CP, 9021 Bessemer Ave., Cleveland 4, Ohio . . . or for more information check CP 7171 on handy form, pages 2 and 3.

Cooling towers, booster service typical applications of small vertical centrifugal pumps . . .

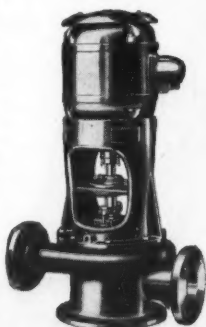
addition of motor feet permits horizontal mounting

Uses: Suited for any small pump applications such as small cooling towers, domestic water supply and hot water heating systems. They may also be used for booster and process pumping.

Features: Equipped with mechanical seals. Pump can be quickly dismantled by removal of four easily accessible bolts.

Description: Pumps are of close-coupled type. Motors are of standard open type. Standard mounting is vertical. However, with addition of motor feet, pump can be readily adapted for horizontal mounting.

Source: SCC pumps are built by Economy Pumps Div., Hamilton-Thomas Corp., Dept. CP, Hamilton, Ohio . . . or for more information check CP 7172 on handy form, pages 2 and 3.



Vertical pump

Yours To Use



YOUR TEST FLOOR



YOUR LABORATORY

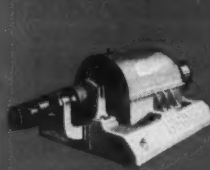
for any and all production problems involving SEPARATIONS OF SOLIDS FROM LIQUIDS

Above are two views of the BIRD RESEARCH and DEVELOPMENT CENTER. It is equipped, staffed and operated for the sole purpose of determining the best, fastest, most economical method of separating *your* solids (however fine or coarse) from *your* slurries (thick or thin — hot or cold)

— whatever they may be, in whatever volume.

Why not take advantage of these highly specialized, highly effective facilities — especially now, when every minute and every pound of production counts.

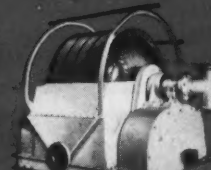
BIRD builds all these types of separating equipment — can, therefore, provide authentic, unbiased recommendations



The BIRD
Continuous
Solid Bowl
Centrifugal Filter



The BIRD
Screen
Centrifugal Filter



The BIRD-Young
Continuous
Vacuum Filter



The BIRD
Suspended
Centrifugal



The BIRD
Classifier for wet
separation by
particle size

BIRD MACHINE COMPANY • South Walpole, Massachusetts

When inquiring check CP 7173 on handy form, pgs. 2-3

• DIRECT
HEATING OF
VAPORS

• DIRECT
HEATING OF
LIQUIDS

• DOWTHERM
INDIRECT
HEATING

• STEAM
GENERATORS

• STEAM
SUPERHEATERS

• WASTE
HEAT
BOILERS



If your plant requires

... place the selection of the specific type in specialized hands...and obtain optimum efficiency.

Petro-Chem Development Company engineers are heating specialists...they can supply the whys and wherefores of indirect versus direct heating and the economics of both.

Every day more than 750, oil and gas fired, Petro-Chem Iso-Flow installations in the petroleum, chemical and allied industries, demonstrate the efficiency of their design and installation.

PETRO-CHEM DEVELOPMENT CO., INC.
120 East 41st Street, New York 17, N. Y.

Representatives:

Bethlehem Supply, Tulsa and Houston • Flagg, Brackett & Durgin, Boston • D. D. Foster, Pittsburgh
Faville-Levally, Chicago • Lester Oberholz, Calif.

When inquiring check CP 7174 on handy form, pgs. 2-3

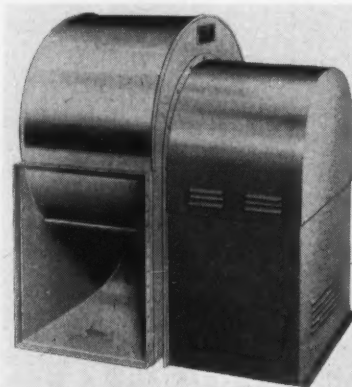
PROCESSING EQUIPMENT

Weatherproof hood fits over fan motor drive for outdoor use

Uses: Fan can be installed outdoors without further protective enclosure.

Features: Weatherproof hood over motor drive section of this centrifugal fan.

Description: Designated as Trane Arrangement #10, it is stated that the fan possesses the high efficiency, low



Hood completely encloses motor drive on right

noise and low horsepower characteristics of the rest of the company's line of fans. It is available with wheel diameters as large as 60 inches, in backwardly inclined and forwardly curved, single width, single inlet models in Class I construction.

Source: Trane Arrangement #10 is a product of The Trane Co., Dept. CP, La Crosse, Wis. . . . or for more information check CP 7175 on handy form, pages 2 and 3.

Squeezing trigger operates gun type extinguisher . . .

hits fire target accurately; repressured from air hose

Uses: For extinguishing both flammable liquid and electric fires.

Features: Aims and operates like a gun and has quick trigger action. It requires no pumping.

Description: One-quart fire extinguisher is easily recharged by pouring in vaporizing liquid, and can be pressurized with any standard air chuck. Gun carries inspection and approval label of Underwriters' Laboratories.

Source: Alfco Pressurized Fire Gun is made by American-LaFrance-Foamite Corp., Dept. CP, Elmira, N. Y. . . . or for more information check CP 7176 on handy form, pages 2 and 3.

*Solve your
EXTRACTION
Problems*

WITH
YORK
SOLVENT
EXTRACTORS

**MAKE DIFFICULT
LIQUID-LIQUID EXTRACTIONS EASY**

Highly efficient economical equipment for performing all laboratory, pilot plant and plant scale solvent extraction operations . . . even those requiring 50 or more extraction stages! Ideal for simple counter-current extractions but primarily designed for performing fractional liquid extractions. A practical means of carrying out such ordinarily difficult separations as *



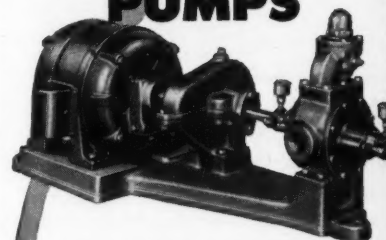
WRITE FOR BOOK
Contains equipment description, applications, etc.

York OTTO H. YORK CO., INC.
ENGINEERS AND 67 GLENWOOD PLACE
MANUFACTURERS EAST ORANGE, N. J.

YOU CAN ALSO CONSULT THESE DISTRICT SALES ENGINEERS
THE RAINEY COMPANY JACOBS ENGINEERING CO.
4219 Yakum Blvd. 417 South Hill Street
Houston 6, Texas (LYnchburg 8551) Los Angeles 13 (MAdison 6-9345)

When inquiring check CP 7177 on handy form, pgs. 2-3

**If it's performance
you're after
✓BLACKMER
PUMPS**



**Bulletin 307, "FACTS," Lists
Data Vital To Process Plant
Pump Engineers**



"FACTS" contains design and construction, maintenance, operation and application data for better pump service.

**WRITE FOR
YOUR COPY**

BLACKMER PUMP CO.
GRAND RAPIDS, MICHIGAN

When inquiring check CP 7178 on handy form, pgs. 2-3

WHEREVER
THESE OR
SIMILAR
LIQUIDS
ARE HANDLED

Acids
Alcohols
Asphalt
Beer
Butane
Dyes
Fuel Oil
Gasoline
Glue
Mash
Molasses
Oils
Paints
Rosin
Soaps
Soups
Syrups
Tallow
Tar
Tomatoes
Yeast

CHEMICAL PROCESSING

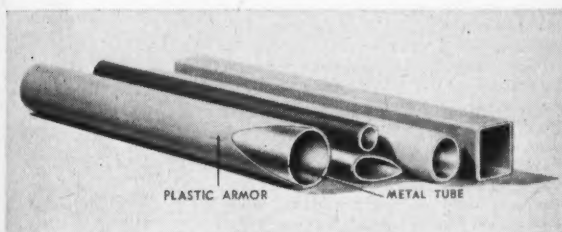
PROCESSING EQUIPMENT

Line of plastic-armored tubing includes square, triangular, oval cross-sections

Use: Being used as industrial instrument lines and electrical conduit.

Features: Square, triangular, oval and streamlined cross-sections have been added to the standard line of round tubing.

Description: Dekoron plastic-armored metal tubing is made by extruding vinyl or polyethylene plastic over



seamless tubing or tubing with welded, lap or butt seams. It is made in a variety of sizes, colors and finishes.

Plastic provides corrosion resistance, will not develop static charge. Maker reports that it will not crack, chip, peel or flake, and that it is not affected by reasonable temperature changes.

Source: Manufacturer is Samuel Moore & Company, Dekoron Tubing Division, Dept. CP, Mantua, Ohio . . . or for more information check CP 7179 on handy form, pages 2 and 3.

Corrugations allow strap to expand or contract with equipment . . .

more constant tension is maintained on insulation covering equipment which changes size

Uses: For holding insulation on tanks, drums, pipe, and other equipment which expands or contracts in circumference.

Features: Tempered stainless steel strap stretches and returns to original size with a spring-like action.

Description: Expand-R-Strap stretches with a tank's expansion just enough to maintain a firm grip without cutting into the insulation. As the circumference recedes to its normal dimension, the strap contracts to normal

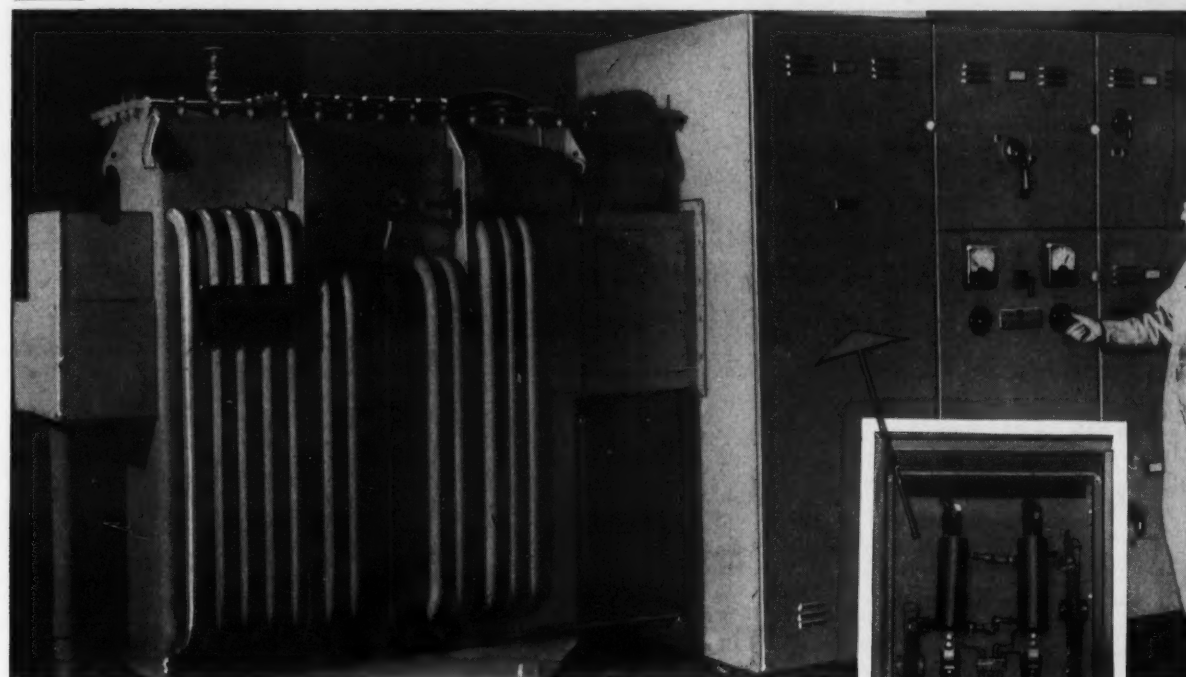


length. Controlled tension is thus maintained throughout all stages of the cycle. Reason for this action is that sections of the strap are corrugated as shown.

Strap is corrosion resistant and can be expected to last as long as the insulation itself. It can be applied with regular strapping tools and in the same manner as conventional strapping.

Source: Made by A. J. Gerrard & Co., Dept. CP, 1905 Hawthorne Ave., Melrose Park, Ill. . . or for more information check CP 7180 on handy form, pages 2 and 3.

Now, St. Paul Foundry & Mfg. Co. buys all its power; saves \$25,000 annually!



Costly, Inefficient Steam Generating Plant Replaced by

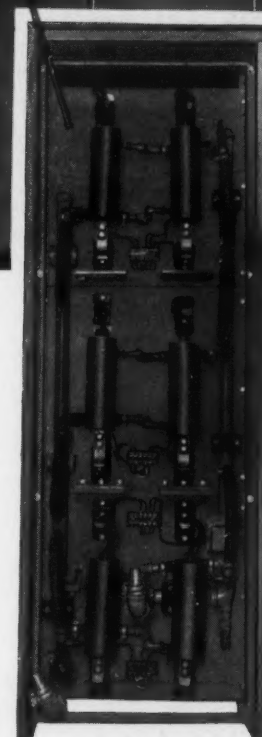


D-C UNIT SUBSTATION

Boiler capacity for cold weather heating is all that the St. Paul (Minn.) Foundry and Mfg. Co. retains of its former steam-driven d-c generating plant. By using purchased power, the company saves \$25,000 annually in fuel, operating, and maintenance costs.

Purchased power is a-c, but the plant requires d-c power for yard cranes and hoists. To tie these two systems together, a six-tube G-E sealed ignitron rectifier was installed. It operates 24 hours a day, 7 days a week.

General Electric d-c unit substations with modern sealed ignitron rectifiers occupy minimum space. The transformer, rectifier and low-voltage switchgear are supplied as a complete, metal-enclosed, packaged unit. Absence of exposed, energized parts provides maximum protection to personnel. For information on d-c unit substations to fit your d-c power needs, call or write your nearest G-E sales office. General Electric Company, Schenectady 5, N. Y.



This photo shows the simple, compact design of the G-E ignitron mercury-arc rectifier unit.

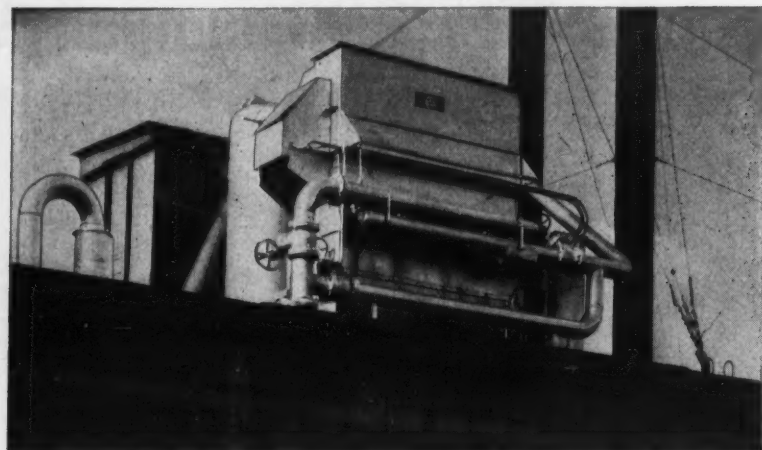
No major moving parts to wear out.
No bearings or brushes to check.
No vacuum pump required.

GENERAL ELECTRIC

324-4

When inquiring check CP 7181 on handy form, pgs. 2-3

Direct saving of cooling water expense returns to you the cost of a Niagara Aero After Cooler in less than two years.



How to Get Drier Compressed Air:

It prevents many troubles and saves much expense

● **NIAGARA AERO AFTER COOLER** cools compressed air or gas below the temperature of the surrounding atmosphere. Therefore you get no further condensation in your lines. You save much in repairs to pneumatic tools and equipment; you save much interruption to production; you save water damage in paint spraying, in air cleaning, in any process where compressed air comes in contact with your materials or parts in manufacturing (sand blasting, for example).

Niagara Aero After Cooler uses evaporative cooling, saving 95% of your cooling water con-

sumption. This saving quickly returns the cost of the equipment to the owner or makes extra cooling water available for other processes.

The Niagara Aero After Cooler produces compressed air with 30% to 50% less moisture than by ordinary cooling methods. Other Niagara equipment provides bone-dry air for processes requiring it.

If you have an air problem or a cooling problem, a Niagara engineer probably has an answer that will improve your process or save you operating or maintenance expense.

Write for Bulletin 98

NIAGARA BLOWER COMPANY

Over 35 Years Service in Industrial Air Engineering

Dept. CP, 405 Lexington Ave.

New York 17, N. Y.

Experienced District Engineers in all Principal Cities

When inquiring check CP 7182 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Corrosive acid funnels handle micro-chemical or volume transfer . . .

polyethylene construction also offered in beakers

Uses: For laboratory and industrial applications where corrosive liquids, particularly hydrofluoric acid, must be handled.

Features: Extremely lightweight and unbreakable.

Description: Polyethylene funnels and beakers. Funnel sizes range from 1 to 12" in diameter, and will cover operations ranging from microchemical work to transfer of corrosive liquids in the heavy chemical industry. They withstand acids at temperatures of 170°F.

Beakers of similar performance characteristics are made in 250 and 400 ml capacity.

Source: Polyethylene funnels and beakers are made by American Agile Corp., Plastics Div., Dept. CP, 5806 Hough Ave., Cleveland 3, Ohio . . . or for more information check CP 7183 on handy form, pages 2 and 3.

Two pedestal assemblies serve range of chemical, hot liquid pumps . . .

capacity, head range maximum 1200 gpm, 250 feet

Uses: For handling chemicals, liquors, corrosive materials and solutions, hot liquids and petroleum.

Features: Liquid end of pump is a completely self-contained unit. A number of sealing arrangements are available to meet all types of problems and conditions. Two sizes of pedestal assembly cover the entire range of pump sizes. Pedestal is of cast iron construction with two antifriction bearings supporting the pump shaft. Impeller is high-efficiency enclosed type. It may be made of any number of materials.

Description: Oil lubricated bearing, pedestal mounted pumps. Available in stainless steel, monel metal, nickel, or other special material when used for pumping liquids that might attack iron or bronze. Users are offered a choice of stuffing box or mechanical seal, direct coupling or V-belt drive.

Water cooled stuffing box may be specified, if desired. Size range extends to 1200 gpm at heads to 250'.

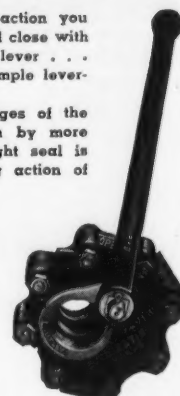
Source: Allis-Chalmers Mfg. Co., Dept. CP, Milwaukee 1, Wis. . . . or for more information check CP 7184 on handy form, pages 2 and 3.

QUICK ACTING Saves Time At Every Operation

EVERLASTING Valves give you the quick action you need in many valve services. They open and close with less than a quarter turn of the operating lever . . . and the operation is easy because of the ample leverage.

And that's only one of the many advantages of the unique EVERLASTING design . . . proven by more than 40 years on the market. Its drop-tight seal is kept leak-proof because of the self-lapping action of the disc rotating over the seat each time the valve is opened or closed . . . its straight-through flow minimizes pressure loss through the valve . . . its non-wedging action prevents sticking . . . and it requires no lubrication.

With all these advantages, you have an "everlasting", ever-tight, ever-satisfactory valve that is literally unequalled for many services on process lines, emergency shut-offs, equipment outlets, boiler blow-off, fire protection, etc., and suitable for practically all fluids.



Trade Mark
"EVERLASTING"
Reg. U. S. Pat. Off.

Write for descriptive bulletin.

EVERLASTING VALVE CO.

49 Fisk Street, Jersey City 5, N. J.

Everlasting Valves

for everlasting protection

When inquiring check CP 7185 on handy form, pgs. 2-3

LEE
Corrosion-Resistant
HEAVY DUTY Kettles

Lee Kettles are available in standard and special designs in capacities up to 500 gallons. They are easy to clean and keep clean, meet all sanitary regulations and are built to conform with the A.S.M.E. Code. Hydraulic operating cylinders are available with all tilting kettles and tilting agitators for safe pouring and cleaning.

May we send you our descriptive technical bulletins?

LEE Metal Products Company, Inc.
418 PINE ST. PHILIPSBURG, PA.

When inquiring check CP 7186 on handy form, pgs. 2-3

CHEMICAL PROCESSING

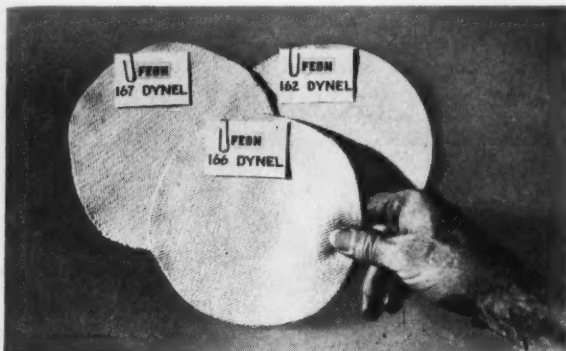
PROCESSING EQUIPMENT

Announce two more filter fabrics . . .

offer improved flow rates — on is twill weave, other is broken chain weave

Uses: Filter cloths are resistant to organic and many mineral acids, bases, and salts, and can be used at temperatures up to 250°F. Available as yard goods, or tailored to fit any type of pressure or vacuum filter, centrifuge, or dry filtration equipment.

Features: Announced are Feon 166 (twill weave) and Feon 167 (broken chain weave). Offers higher flow rates



Feon 166 and Feon 167 are latest synthetic filter fabrics

than previously available nylon, dynel, Orlon, or Vinyon-N synthetic fabrics.

Description: Fabrics resemble the appearance, texture, and filtering characteristics of cotton cloths of similar weave. Feon dynel is a spun-staple from Vinyon-N, a copolymer of vinyl chloride and acrylonitrile. Full-bodied, resilient texture allows sealing in press frames with minimum rim pressure.

Source: Announcement of Filtration Fabrics Div., Filtration Engineers, Inc., Dept. CP, 155 Oraton St., Newark 4, N. J. . . . or for more information check CP 7187 on handy form, pages 2 and 3.

Cools and conditions air in self-contained unit . . .

casing heavy furniture steel with removable front panel for easy servicing

Uses: Stores, offices, apartments, drafting rooms, laboratories, tool rooms, and factory spot applications.

Features: Quiet operation plus small floor space required for units. Unit with 3-ton cooling capacity requires space 20½ x 37½", 5-ton unit requires 24½ x 45½", and 7½-ton unit a space of 28½ x 60½" square.

Description: Unit casing completely insulated with odorless, fireproof glass fiber insulation. Adjustable fan drive allows exact settings of fan speed to air volume needs. Permanent or throwaway filter accessible without removing grille. Heavy duty cooling coil provides effective control over air moisture and temperature. Grille adjustable for directing air flow up or down, right or left. Two-knob control panel allows for setting of temperature, operating unit for either heating or cooling, or use of fan alone. Requires only one electrical and three piping connections.

Source: Manufactured by The Trane Co., Dept. CP, La Crosse, Wis. . . . or for more information check CP 7188 on handy form, pages 2 and 3.

Remember the trade marks "tt" and "TUBE-TURN" are applicable only to products of TUBE TURNS, INC.



the engineered way to put an end to a pressure problem

WHEN IT COMES to containing pressures—in a header or pressure vessel or in merely blanking off a line—your safest, surest bet is a TUBE-TURN Welding Cap. Formed to 2:1 semi-ellipsoidal contours, it represents the ideal pressure-resisting closure for a cylinder. No makeshift capping method can approach its bursting strength which is actually far greater than seamless tubing of like thickness and grade of steel.

Another important point: TUBE-TURN Welding Caps are manufactured to meet ASME Boiler Code requirements and the chemical-physical standards of ASTM specification A106 for Grade A and Grade B carbon steels.

For welding caps and for all TUBE-TURN Welding Fittings and Flanges, see your nearby TUBE TURNS' Distributor. You'll find one in every principal city.



Write Dept. KK-10 for free booklet giving Dimensional Data on types, sizes and materials of TUBE-TURN Welding Fittings and Flanges.

"Be sure you see the double tt"

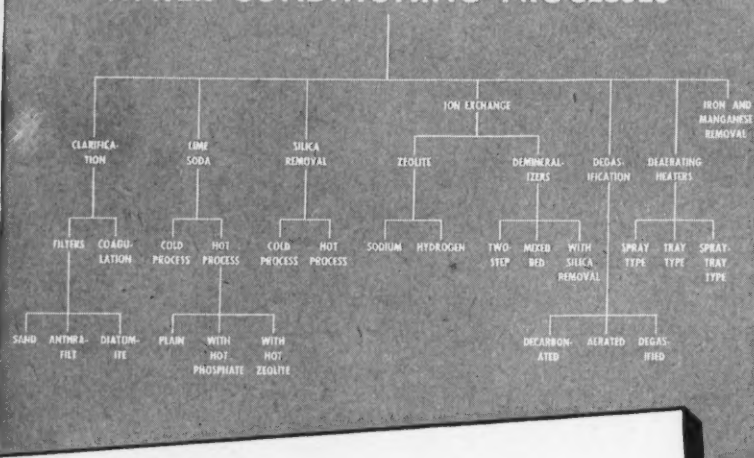
TUBE TURNS, INC.

LOUISVILLE 1, KENTUCKY

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TUBE TURNS OF CANADA LIMITED, CHATHAM, ONTARIO . . . A wholly owned subsidiary of TUBE TURNS, INC.



When inquiring check CP 7189 on handy form, pgs. 2-3



Whatever may be
your water conditioning needs . . .

go to **GRAVER**

for the right processes
and equipment
based on....

- 40 years of specialized experience
- thousands of successful installations
- consistent pioneering in process development
- the most modern designs

*Write for information and recommendations
without obligation*

GRAVER WATER CONDITIONING CO.
Division of Graver Tank & Mfg. Co., Inc.
216 WEST 14TH STREET, NEW YORK 11, N.Y.

GW 447A

When inquiring check CP 7190 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Cooler design features less maintenance . . .

heavier casting not subject to warpage and retains a better seal

Uses: Cooler, which serves as a horizontal clinker conveyor, is used in cement, lime, chemical and gypsum plants. Handles fine or coarse material and it recuperates and returns to kilns 76% of heat of material in the form of preheated secondary air for combustion.

Features: In most recent model, grease lubricated rod bushings have been eliminated from the travel control spring assembly, with result that only the drive mechanism need be lubricated.

Description: Other innovations to the feed end portion of the cooler include substitution of a 3-piece liner for the 2-piece liner; a reinforced body to prevent side warpage and give rigid support to the side plate and end liners, and a cast iron baffle to improve the connection between the air quenching cooler body and the housing. The heavier casting is not subject to warpage, making for a better seal between the cooler and the atmosphere.

Source: Product of Allis-Chalmers Mfg. Co., Dept. CP, 1126 S. 70th St., Milwaukee 1, Wis. . . or for more information check CP 7191 on handy form, pages 2 and 3.

Triplex diaphragm pump reaches pressures up to 6000 psi . . .

handles variety of materials from thin liquids to pastes

Uses: For pumping cosmetics, soap, syrup, petroleum products, abrasive constituents, paper, and others at high pressures.

Features: Though rated at 3000 psi, these pumps have been operated at pressures as high as 6000 psi.

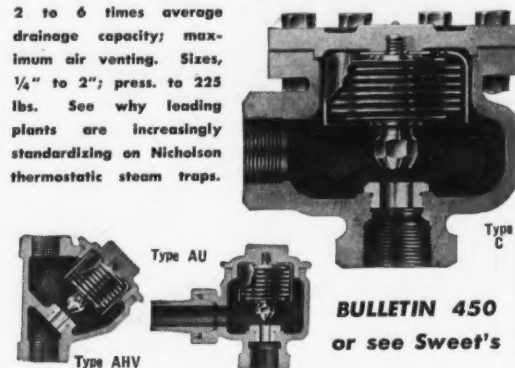
Description: Hydropulse triplex diaphragm pump uses three cylinders, each equipped with rubber diaphragm and a piston propelled by cam action. The diaphragm separates and seals the shaft end from the fluid end, but diaphragm-piston stroke is greater than in conventional diaphragm pumps. It is self priming and will not damage itself if it runs dry. These stainless steel pumps handle 30 to 150 gph.

Source: Product of Pioneer Division, Scott & Williams Inc., Dept. CP, Empire State Bldg., New York 1, N.Y. . . . or for more information check CP 7192 on handy form, pages 2 & 3.

Nicholson Steam Traps

CUT COOKING TIME
from 6 to 3½ HOURS

At a Southern chemical plant, tests run on steam cookers showed a 3½-hour cycle with Nicholson traps against 6 hours for competing units. Reasons for Nicholson's faster heat transfer: operate on lowest temperature differential; 2 to 6 times average drainage capacity; maximum air venting. Sizes, ¼" to 2"; press. to 225 lbs. See why leading plants are increasingly standardizing on Nicholson thermostatic steam traps.

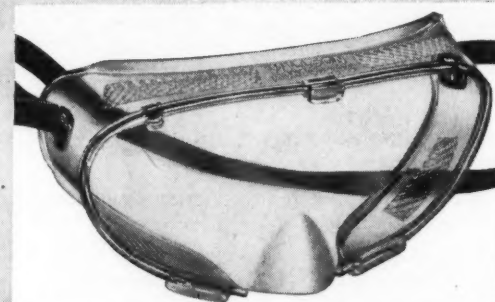


W. H. NICHOLSON & CO. 181 OREGON ST.
WILKES-BARRE, PA.

Sales and Engineering Offices in 53 Principal Cities

When inquiring check CP 7193 on handy form, pgs. 2-3

WILLSON MonoGoggles®



Keep You on the Safe Side

- Wide angle vision
- Replaceable lens — clear or green
- Front and side protection
- Fits over spectacles
- Form-fitting frame
- Lightweight comfort

Write for Descriptive Bulletin



WILLSON
Dependable Products Since 1870

WILLSON PRODUCTS, INC., 227 Washington St., Reading, Pa.

When inquiring check CP 7194 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

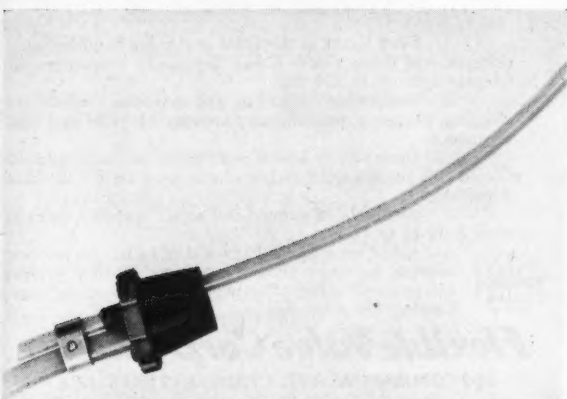
Carboy spout designed to stop splashing and spilling . . .

up to five gallons per minute can be poured from any sized carboy with rubber and plastic spout

Uses: Safety spout for pouring acids and other chemicals from carboys.

Features: Air vent design prevents splashing, spilling or surging.

Description: GS safety air vent pouring spout fits any size carboy and assures a smooth even flow of liquid without spurts or splashes. It is made of acid resistant rubber



Carboy spout at pouring angle

and plastic for long life. Liquid pours through large tube; small tube acts as air vent. This type of spout requires no pumping or siphoning.

Source: General Scientific Equipment Co., Dept. CP, 27th and Huntingdon Sts., Philadelphia 32, Pa. . . or for more information check CP 7195 on handy form, pages 2 and 3.

Pressure-sensitive adhesive holds non-slip covering to clean, dry floors . . .

available in form of cleats 6 by 24", or rolls 6" wide by 96' long

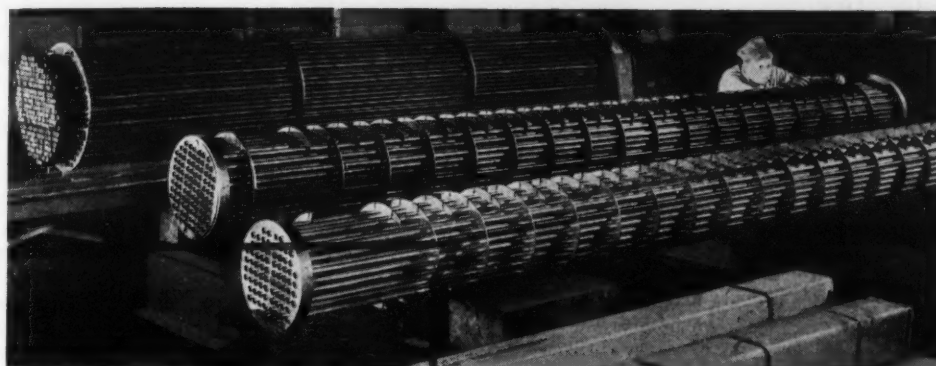
Uses: Non-slip covering for steps, ramps, platforms, plant floors, walkways, cat walks, washrooms, docks, warehouses, storerooms, step ladders, decks, passageways, production lines, aisles, storage tanks, fire escapes, flat steel plates, etc.

Features: Protective liner on the underside is peeled off at the time of installation, exposing a pressure-sensitive adhesive which holds the covering firmly to any clean, dry, smooth surface.

Description: "Fera-Mat" is composed of mineral granules which are resin bonded to a heavy duty, weatherproof cloth backing. It is available in cleats measuring 6 x 24", or in rolls measuring 6" wide x 96' long. Cleats are made in black, red, and green; rolls come only in black.

Being non-rigid, the floor covering permits reasonably heavy loads to pass over it without damage. Dirt can be easily brushed from the surface.

Source: Development of the American Abrasive Metals Company, Dept. CP, 460 Coit St., Irvington, N. J. . . or for more information check CP 7196 on handy form, pages 2 and 3.



A. O. SMITH designs with TRENTWELD

When A. O. Smith, big name in steam and heat transfer equipment recently designed and built a heat exchanger unit for Socony-Vacuum — TRENTWELD Stainless Steel tubing was used throughout. This heat exchanger unit for use in the petroleum industry is another example of how TRENTWELD is preferred by designers for products where stainless steel tubing fits the bill.

And here's why: TRENTWELD is the product of tube specialists. That means you're assured uniform quality and specifications of manufacture that meet your most exacting needs. Then too, TRENTWELD is available in a full range of sizes—1/8" to 36" in diameter, in all grades and finishes. When the job requires stainless steel tubing, check with us.

TRENTWELD

STAINLESS STEEL TUBING

TRENT TUBE COMPANY, GENERAL SALES OFFICES, EAST TROY, WISCONSIN

(Subsidiary of Crucible Steel Company of America)

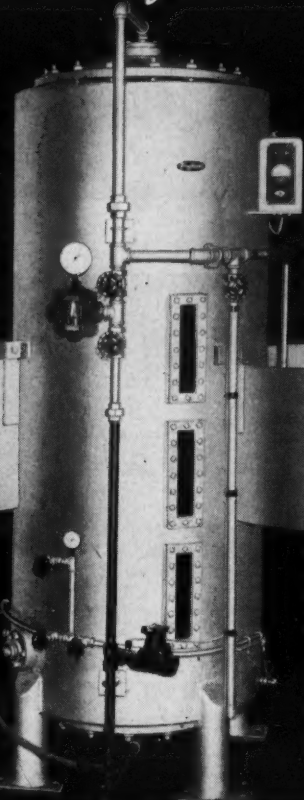
When inquiring check CP 7197 on handy form, pgs. 2-3

Penfield

MONO-BED DEMINERALIZER

Cuts Deionization Costs

Cation and exceptionally strong anion base exchangers are intimately mixed in a single unit tank, thus providing in one container the equivalent to a large number of "multiple bed systems".

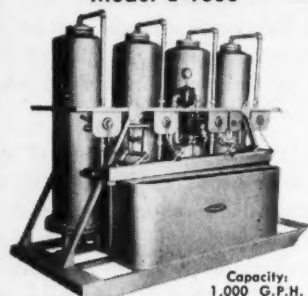


The raw water passes through the Penfield Mono-Bed Column only once, yet comes out with a mineral content of virtually zero (resistances have been reported as high as 20,000,000 ohms per centimeter).

Illustrated here is the Penfield Mono-Bed Demineralizer, Model No. M-1000, with a flow rate of 1,000 g.p.h. Required floor space for the complete unit is 5' x 2 1/2' x 7'.

Regeneration is accomplished by the simplest and most economical method known — gravity and displacement. No water pressure is required and there are a minimum of valves to operate.

Model L-1000



Capacity:
1,000 G.P.H.

Over the past ten years, Penfield has built more four column demineralizers than any other manufacturing concern. In comparison to distilled water costs, Penfield Industrial Demineralizers provide savings as high as 85% and in one reported instance cut costs 98%. No heat or steam power is ever required and units are ready for immediate operation on arrival at site. Send for "Penfield Pays" folio giving specifications of all Penfield Demineralizing units — single, double and four column.

AVAILABLE IN FLOW RATES FROM 200 TO 5,000 G.P.H. AND UP

The Penfield Mono-Bed Demineralizer operates upon the most efficient deionizing technique known . . . is ideal for a large variety of processing and other operations — including power plants, mirror plating, electronic tubes, photographic finishing, and wherever exceptionally high purity, mineral-free water is required.

Write today, describing your water treating needs.

PENFIELD

MANUFACTURING CO., INC.

19 High School Ave., Meriden, Conn.

FILTERS · SOFTENERS · DEGASIFIERS · DEMINERALIZERS

Penfield "Planned Purity" PAYS!

When inquiring check CP 7198 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Hand cleaner liquefies when it is rubbed on the skin . . .

contains emollient oils, petrolatum, lanolin and a solvent

Uses: For cleaning workers' hands where grime and grease are deeply imbedded in the skin. In industry it has been found effective in removing such materials as gasket sealing compounds, rubber cements, paints and resins. Also, for removing soot and carbon deposits that become incorporated in the skin of foundry workers, millwrights and electricians.

Features: When rubbed on the skin, material turns to a liquid, thus obviating the use of water.

Description: Hand cleaner contains a solvent, buffered by emollient oils, petrolatum and lanolin. The liquid loosens the dirt, grime, rubber cement, asphalt, paint, etc., from the hands where it can be removed by wiping off with a paper towel or cloth.

Source: Skin-Cote waterless hand cleaner is a product of The Boyer-Campbell Co., Dept. CP, 6540 St. Antoine St., Detroit 2, Mich. . . or for more information check CP 7199 on handy form, pages 2 and 3.

Reducer added to line of "quick change" tube fittings . . .

fittings are complete and ready to use without any tube preparation

Uses: Fittings for tube from 1/8 to 7/8" OD made of brass, aluminum, steel, stainless steel, Monel, or plastic as required.

Features: Construction of fittings makes threading or flaring of the tube unnecessary.

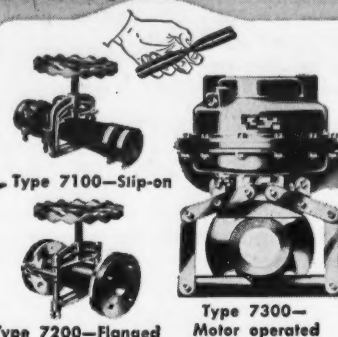
Description: The Swagelok reducer fitting consists of a body, two ferrules and a nut. Ferrules plus the threaded chuck inside the Swagelok nut clinch tight around the tubing wall and provide a leak-proof seal.

To install the fitting, the tube is inserted into the reducer, the nut is given one and one-quarter turns. The reducer is then inserted into the Swagelok fitting and the fitting nut tightened. This completes the job.

Fittings are available in all the same metals as the tubes for which they are to be used.

Source: Product of Crawford Fitting Company, Dept. CP, 884 E. 140th St., Cleveland 10, Ohio . . . or for more information check CP 7200 on handy form, pages 2 and 3.

if it Flows . . .



Sulphuric Acid
HCl Acid
Acetic Acid
Acid Slurries
Brines

Type 7200—Flanged

Type 7300—
Motor operated

Flex-Valve it

FLEX-VALVE is the ideal choice for handling such materials as those listed—either dry or in suspension—at temperatures up to 210 deg.

Resists both abrasion and corrosion; eliminates clogging, plugging, building up; absorbs vibration and misalignment.

Open—it's as free of obstruction as the pipe itself. Closed—it's bubble-tight and it closes tight on all of these materials.

Available in either hand or air operated types in sizes from 1/2 to 12 in.



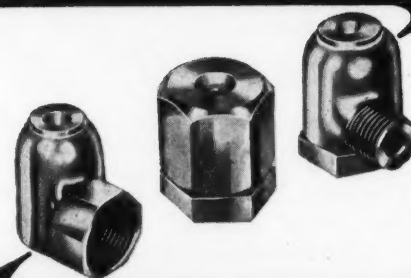
Users have found FLEX-VALVE to be the low-cost solution to tough valving problems. If your present valves aren't 100% effective, take a look at this one. Catalog 455 gives details.

Flexible Valve Corporation

306 COMMERCIAL AVE. • PALISADES PARK, N. J.

When inquiring check CP 7201 on handy form, pgs. 2-3

MARLEY NOZZLES are First choice in CHEMICAL PROCESSING



Chemical processing plants all over the world pick MARLEY NOZZLES for their outstanding efficiency in providing maximum break-up of water at lowest pressures. Three designs are available . . . ONE PIECE, TWO PIECE, ATOMIZING. None have moving parts . . . All meet specific needs. Write for Bulletin SN3-50 today.

THE MARLEY COMPANY, INC.
KANSAS CITY 15, KANSAS

When inquiring check CP 7202 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

Electrodeposit of nickel is barrier between pipeline and corrosive . . .

coated pipe can be bent, cold-reduced, then easily fabricated using a proven welding technique

Uses: Tubing and fittings for construction of corrosion-resistant pipelines in chemical, oil, paper and other process industries.

Features: Embody electrodeposit of nickel so controlled as to provide a continuous, pore-free impassable barrier between process stream and steel pipe and fittings. Pipe can be bent or cold-reduced, if necessary, and then fabricated, using a proven welding technique.

Description: Seamless pipe or tubing and forged steel and fittings "lectro-clad" with pure nickel. In supplying pipe and fittings to requirements, the pH, chemical analysis, contaminants, solids content, and degree of aeration are factors of interest.

Source: Lectro-Clad pipe and fittings are developments of Bart Mfg. Corp., Dept. CP, Belleville 9, N. J. . . . or for more information check CP 7203 on handy form, pages 2 and 3.

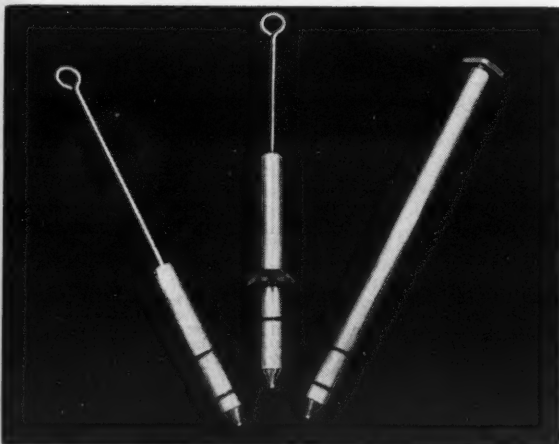
Hard-to-reach metal chips cling to permanent magnet tip of removal tool . . .

5 models meet range of requirements; remove chips from blind holes, castings and various surfaces

Uses: For removing boring chips from castings, picking up steel chips from around machinery and removing chips and metallic sludge from coolant tanks.

Features: Models available include both large and small magnets with hand wipe-off release or the patented "pull-to-release" feature.

Description: These tools use permanent magnets, not electric. They resist water, oil and gasoline. Five different models for varying job requirements are included. Di-



Tubular "Multilift" magnetic tools

ameters are 1/16, 3/8, 1 3/8 and 2 5/8". All have patent brass pick-up to prevent sticking. Neoprene bumper rings prevent magnet grabbing sides.

Source: Magnetools are manufactured by Multifinish Mfg. Co., Dept. CP, 2114 Monroe Avenue, Detroit 7, Mich. . . . or for more information check CP 7204 on handy form, pages 2 and 3.



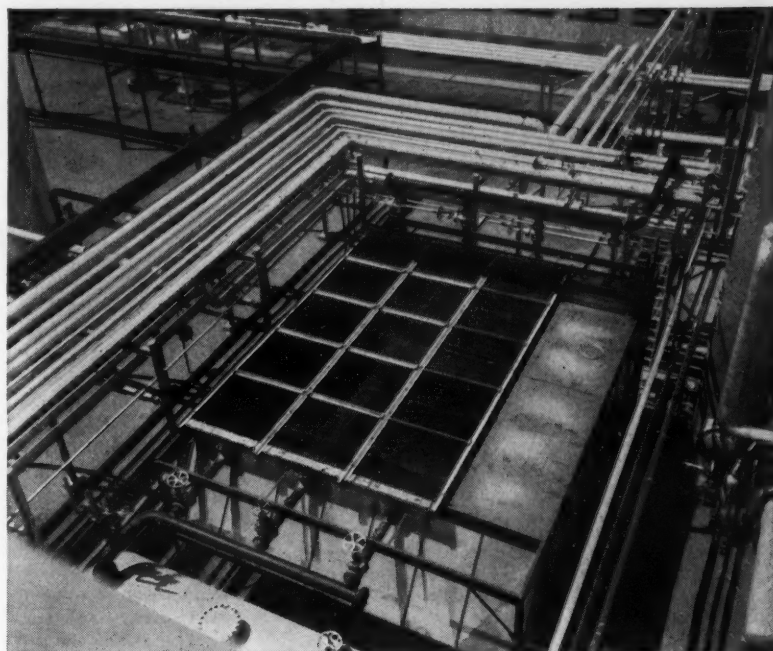
Alcoa Heat Exchanger News



Published by Aluminum Company of America

Skelly Oil Company Saves 50% IN TUBE COSTS ON AIR COOLED EXCHANGERS

At their Eunice No. 2 gasoline plant near Eunice, New Mexico, Skelly Oil Company has installed a "Fin-Fan" air-cooled unit equipped with "aluminum tubes" and "aluminum fins" as a condenser for "Still Overhead Vapors." The company's engineers chose this type of condensing equipment because the atmosphere contained hydrogen sulfide and the vapors contained hydrogen sulfide and water in corrosive quantities. In addition there was a shortage of suitable cooling water. Aluminum tubes and fins were preferred to steel or Admiralty tubes with copper fins because of their resistance to hydrogen sulfide corrosion and lower investment cost. In this particular installation Fluor Fin-Fan designed equipment with Griscom-Russell K finned aluminum tube sections was used. The aluminum tubes are rolled into cast-iron headers and no cathodic protection has been necessary. These units have been in service for over two years—show no sign of corrosion—should last 12 to 15 years based on past experience with aluminum.

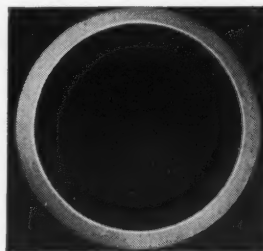


Rearmament needs severely limit the manufacture of aluminum heat exchanger tubes. But we realize that the purchase of refinery and processing equipment requires long study of economic and performance factors. That is the reason for this message.

ALCLAD TUBES . . .

a bargain in cooling water corrosion resistance

HOW THEY WORK



The thin zinc-aluminum alloy internal layer galvanically resists corrosion of the base aluminum alloy structure of the tube—acts like a "built-in" anode. Corrosion is confined within the integral cladding layer. Even when large areas of the Alclad coating have been destroyed by electrolysis, the rest of the coating still protects the exposed alloy core. Alclad Tubes have withstood such corrosive attack for more than 17 years.

WHAT THEY COST

Foot for foot, metal for metal, Alclad Tubes cost less than any other tubes except bare aluminum. 20% less than ordinary steel. 47% less than Admiralty brass. 83% less than stainless steel.

ALCOA OFFERS BOOKLET



This 24-page booklet will answer many of your questions about Alcoa Tubes. It covers fabrication techniques, alloy selection, chemical and petroleum applications. It describes tube cleaning, inhibitors, cathodic protection. It contains complete information on fluid flow and heat transfer. There are formulas, tables and specification data. Write for your free copy today. ALUMINUM COMPANY OF AMERICA, 1861K Gulf Building, Pittsburgh 19, Pennsylvania.

When inquiring check CP 7205 on handy form, pgs. 2-3



**You get
COMPLETE VERSATILITY
in Acid-Proof Tank Linings
with . . .**

**Patterson
POROX**

Pure-white Patterson Porox Lining Blocks have dependable acid-proof durability in service—you can count on that — combined with versatility in shapes for easy application to tanks of every style. Make the chemical industry's choice *your* choice—specify POROX for that new tank lining today!

Richard L. Conway
President

The Patterson Foundry and Machine Company East Liverpool, Ohio, U. S. A.

NEW YORK, BOSTON, BALTIMORE, PHILADELPHIA, PITTSBURGH, DETROIT, CINCINNATI,
CHICAGO, ST. LOUIS, HOUSTON, DENVER, LOS ANGELES, SAN FRANCISCO, SEATTLE
The Patterson Foundry and Machine Company, (Canada) Limited
Toronto, Canada
MONTREAL

When inquiring check CP 7206 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Temperature of hot plate set by switch . . .

one model provides controlled heat up to 800°F

Uses: Hot plate for heavy-duty use in the laboratory.

Features: Control switch permits infinite variability of the first 50% of total wattage, offering a means of surface temperature control within this range.

Description: By selecting from models rated between 660 and 2000 watts, any desired surface temperature up to about 800°F can be secured and



Hot plate has graduated heat control

maintained. Even higher temperatures can be obtained by sacrificing the temperature control.

Plates operate from 120 or 240 volts AC. Resistor wires are totally enclosed. Feet are molded plastic.

Source: Maker is Edwin L. Wiegand Company, Dept. CP, 7517 Thomas Blvd., Pittsburgh 8, Pa. . . or for more information check CP 7207 on handy form, pages 2 and 3.

Burlap and cloth bags held securely but not strained . . .

filling spout uses twisting action to insure even weight distribution

Uses: Spout is used for filling burlap or cloth bags from hoppers.

Features: Though designed for quick bag attachment, the spout distributes weight evenly over the entire bag wall and eliminates tearing and puncturing.

Description: Twirl-Tite spout has a connector flange at the upper end for bolting to supply hopper or other equipment. At the lower end is a



Here's an AMAZING BRAND NEW SAFETY SIGN that will be welcomed by Safety Men! Brady Safety Signs stick to wood, glass, metal, concrete, etc. without moistening. May be applied to any clean surface in a jiffy. No screws, nails, bolts or skilled help necessary. All you do is peel from card, apply where wanted and the sign is up to stay.

Brady Safety Signs are made of durable cotton cloth, Silicone Coated to resist dirt, grime and moisture. CONFORM TO ASA Standard Z35.1-41. Select your requirements from a complete catalog of standard safety messages. Cost only a few cents per sign. Immediate delivery. Specials made to order.

WRITE FOR
Free
SAMPLES
AND
USEFUL
CATALOG

WIRE MARKERS	MANUFACTURERS OF SELF-STICKING PRODUCTS	
PIPE MARKERS	W.H. BRADY COMPANY	EST. 1914
SAFETY SIGNS		1635 E. SPRING STREET • CHIPPEWA FALLS, WIS.
PRINTED "SCOTCH" TAPE		
MASKS & STENCILS		

When inquiring check CP 7208 on handy form, pgs. 2-3



Reduce Your Pump Equipment Costs...

Standardize on New Waukesha SHIFTSPEED Units

ONE SHIFTSPEED Unit Serves ALL Pumps and ALL Motors including 5 H.P.

DELIVERY OCTOBER FIRST

Here's another big PLUS dollar-saving advantage you get when you specify a Waukesha SHIFTSPEED Pump. ONE size SHIFTSPEED unit can be used for all sizes of pumps and all motors up to and including 5 hp. This new, revolutionary variable speed drive unit, pioneered by Waukesha, has many new features. It adds "Automatic Gear Shift" convenience to the pump industry. Capacity changes can be made while pump is operating by just turning the hand-wheel, and watching the Dial on the housing for required pump speed. No belt-and-sheave changes — no stopping or interrupting your product flow. No belt stretch, no belt slipping. Standard timing belt provides long-lasting positive power delivery at all speeds. Write for descriptive folder and prices.

*P.D.—Positive Displacement for smooth flow.

**WAUKESHA
FOUNDRY
CO.**

Waukesha, Wisconsin

Waukesha 100%
SANITARY
PUMPS

Dependable Product of a Responsible Manufacturer

When inquiring check CP 7209 on handy form, pgs. 2-3

CHEMICAL PROCESSING

FOR LOWER STORAGE COSTS

SPECIFY

Kalamazoo
GLAZED TILE



You practically eliminate maintenance problems and costs when you store bulk materials such as coal, gravel, and sand in tanks and silos made of Kalamazoo Glazed Tile. Far superior to concrete — easy to clean — cannot contaminate contents. For a permanent low-cost installation, specify Kalamazoo Glazed Tile.

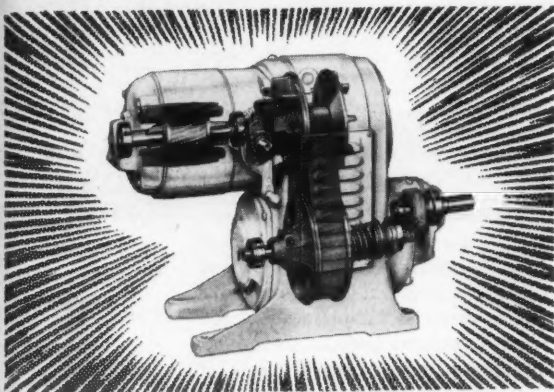
WRITE FOR COMPLETE FACTS

Kalamazoo TANK AND SILO COMPANY

1032 Harrison Street • Kalamazoo, Michigan

When inquiring check CP 7210 on handy form, pgs. 2-3

Miracle MOTOR STEPS UP PRODUCTION!



VARIDRIVE 2 TO 10,000 RPM

Varidrive will give your powered equipment any and every speed needed right up or down to a split rpm. No external gearing. Simply turn the control handle for instant speed selection. Increase production 10%, 20%, 30% or more. ¼ to 50 h.p. Ask for new U.S. Varidrive Bulletin.



U.S. ELECTRICAL MOTORS Inc.

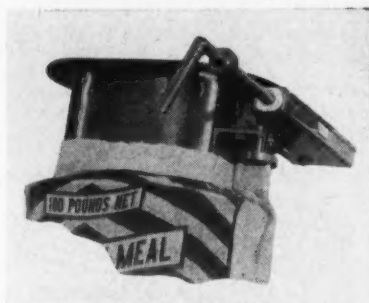
Box 2058, Los Angeles 54, Cal. or Milford, Conn.

When inquiring check CP 7211 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

bag supporting flange. Twirl-Tite mechanism is located at side, with fingers just above bag-supporting flange.

In operation, the bag is pulled up around the spout and between the fingers. Actuation of the fingers twirls the bag, folding it and constricting it over the flange. As filling progresses,



Shows twisted portion just above lower flange (inside bag)

the weight of material pulls evenly over the entire bag surface rather than on the fingers. The tight seal between bag and spout prevents dust from escaping during filling. When mechanism is again operated, the bag drops to conveyor or other equipment as required for process.

Other models are motor driven and controlled by foot switch. Powered model is 10" square by 16" high compared with 4-½ x 20 x 6" high for the hand unit. The mechanism can be supplied for installation on existing spouts.

Source: Development of B. F. Gump Co., Dept. CP, 1325 S. Cicero Ave., Chicago 50, Ill. . . or for more information check CP 7212 on handy form, pages 2 and 3.

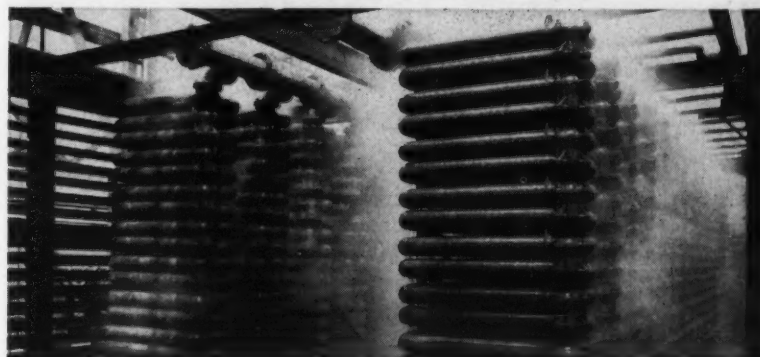
Contains descriptions of asbestos packings

Braided and twisted asbestos packings are the topic of this 8-page bulletin. For every product mentioned, the following information is given: description, service recommendations, standard sizes, standard packages and either approximate weights or packaging specifications.

Items of manufacture so designated are: twisted valve stem, braided valve stem, high temperature valve stem, braided round, braided squared, square plaited braid, oil resistant, and braided blue packings. "Braided and Twisted Asbestos Packings" is issued by Raybestos-Manhattan, Inc., Dept. CP, Packing Division, Manheim, Pa. When inquiring specify CP 7213 on handy form, pages 2 and 3.

EVAPORATIVE COOLING WITH NATIONAL CAST IRON SECTIONS *licks a tough problem*

FOR MARION MANUFACTURING CORPORATION
INDIANAPOLIS, INDIANA



View of Marion Manufacturing Corporation's Evaporative Sulfuric Acid Coolers, one for drying tower, one for absorber tower acid, each consisting of 15 stacks of 18 type AX National Sections.

Lowering of the water table in the area caused a sharp increase in hardness in the well water used for cooling on Marion Manufacturing Corporation's contact sulfuric acid plant in Indianapolis. As a result, heavy scale formation was building up on the outside of the coolers used for the absorber tower and drying tower acid (98% H₂SO₄). This scale formation on the well water cooled units decreased efficiency and caused high maintenance expense.

The problem was solved at minimum expense by a new method of operating sprayed type National Sections as evaporative coolers. Instead of running the coolers on raw well water, a closed water system was developed, using treated city water in a recirculating system, the cooling on the sections being done by evaporation rather than through sensible heat pickup by the water. The National Section Coolers in effect act as their own cooling towers.

The economies of using an evaporative cooler engineered by National Radiator are considerable:

Low First Cost—Not much more than a cooler of comparable capacity utilizing raw water. No expensive cooling tower to buy.


Low Operating Cost—No well pump minimum disposal costs and problems. Make-up water a small fraction of usual amount circulated; treatment cost very moderate.

Low Maintenance Cost—No manual cleaning of the water side of the coolers; no down time for this periodic operation.

Greater Cooling Efficiency—Freedom from heavy outside fouling, consequently more uniform results. Designed for worst summer days; in winter can be run almost dry.

Conservation of Water—Vital in many localities.

Let National Radiator Company's heat transfer specialists consult with you on your particular cooling and condensing problems, and investigate the possibility of solving them with National Sections.



Heat Transfer Division

THE NATIONAL RADIATOR COMPANY
JOHNSTOWN, PENNSYLVANIA

SEND COUPON

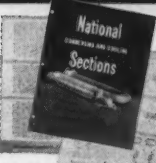
The National Radiator Co., Heat Transfer Division, CP
Johnstown, Pennsylvania

Please send Technical Manual HT-20 on National Condensing and Cooling Sections.

Name _____

Firm _____

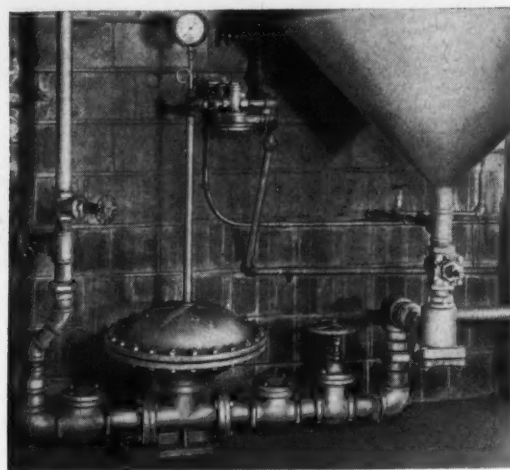
Address _____ City _____ Zone _____ State _____



When inquiring check CP 7214 on handy form, pgs. 2-3

ODS — Diaphragm SLURRY PUMP

link-free simplicity... a low maintenance feature!



There's nothing novel about a diaphragm being used to transmit a pumping impulse to stream of slurry or liquid. Up to that point the O.D.S. is similar to all other diaphragm slurry pumps.

But where the O.D.S. Pump does differ is in the way the diaphragm gets its impulse. In the O.D.S. this is created pneumatically — not mechanically. There is no link connecting the diaphragm with the source of power. There is no hole in the center of the diaphragm because there is no need for it. And further there are no slots or holes around the perimeter of the diaphragm where it is clamped between the cover and casing.

This combination of the no mechanical link to the diaphragm and 'no slots or holes in the diaphragm' makes the O.D.S. just about the simplest diaphragm slurry pump you can find anywhere. You can readily appreciate what these two design features mean in the way of low maintenance. Since maintenance is an important factor in pumps, why not get all the details about the O.D.S. Pump? In writing for our Bulletin 309-R, tell us about your pumping problem. You see, we also have the Olivite Centrifugal Chemical Pump. It might be better for your requirement.

New York 18 — 33 W. 42nd St. Chicago 1 — 221 N. LaSalle St.
Oakland 1 — 2900 Glascock St. San Francisco 11 — 260 Calif. St.
Export Sales Office — New York • Cable — OLIUNIFILT

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E. L. Bateman Pty., Ltd.
Johannesburg, Transvaal

When inquiring check CP 7215 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

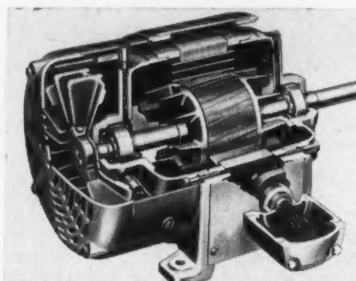
**Carries UL approval
for inflammable
dusts, gases . . .**

totally enclosed motor uses large fan to cool casing

Uses: Motor in the 3 to 75 hp range is specially recommended where Class I, Group D, or Class II, Group F and G fire hazards exist.

Features: Large fan, mounted inside outer frame forces air around the enclosed section for cooling.

Description: Motor is designed for safety throughout. Sealed terminals and elongated spark-arresting



Cutaway view of enclosed motor

bearing sleeves are used. It uses a solid centrifugally cast rotor. Other castings used in the motor are normalized.

Source: A product of U. S. Electrical Motors, Inc., Dept. CP, 200 E. Slauson St., Los Angeles 54, Calif. . . . or for more information check CP 7216 on handy form, pages 2 & 3.

**Red phosphor coating
of mercury lamp
corrects color . . .**

blending red with shorter waves adds whiteness to light

Uses: Especially well suited for industrial lighting. Can also be used outdoors with proper protection from rain and moisture.

Features: Glass bulb has an internal coating of red phosphor. Added red light balances normal blue-green of mercury arc light to give a more pleasing, normal color value.

Description: Model J-HI mercury arc lamp has modified elliptical shape which tends to distribute the heat so that temperature is uniform all over the glass surface. Overall length is 11-1/2" (max) with a diameter of about 4-5/8". The 400 w bulb fits in a Mogul screw base and supplies 18,000 lumens when new. Light requires 220 v to start, taking about 4 minutes to strike an arc. Once burning, the lamp drops only 135 volts,

how much better can

**better
SPRAY NOZZLES
be?**

The very least you can expect from Spraying Systems Spray Nozzles is lower overall nozzle cost. But you can also expect a lot more. Changeover to Spraying Systems Spray Nozzles repeatedly results in very substantial increases in spraying efficiency and accuracy. The reason is this: Spraying Systems' specialization in the design and manufacture of one type of product only . . . Spray Nozzles. As a first step in proof, let us send you our industrial spray nozzle catalogs.

SPRAYING SYSTEMS CO.
Engineers and Manufacturers
3216 Randolph Street
Bellwood, Illinois

WRITE FOR

Catalog No. 22
General Industrial
Spray Nozzles

Catalog No. 23—Pneumatic Atomizing Nozzles

When inquiring check CP 7217 on handy form, pgs. 2-3

**Technicians
Prefer
Despatch
LABORATORY
OVENS**



speedy
accurate
results

Model V-31: 37" x 25" x 50"
12 KW Max Temp. 500° F

An exacting testing and production oven that provides very close heat uniformity. Built-in indicating temperature controls. Emphasis has been on heavy construction . . . even heat distribution . . . capacity loads at high speed . . . ability to "stand the gaff"—even under continuous 24-hour-a-day usage. Six sizes and types are available for the endless variety of heating, drying, baking and testing processes. Get Bulletin No. 107.

ovens
for all
purposes

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Established OVEN CO. in 1902

343 Despatch Building
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When inquiring check CP 7218 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Calling all users of Speed Reducers!



Get the new
Cleveland
Book
FREE

Bulletin 130 gives rating tables, dimensions and other data you need in selecting the right sizes in standard worm-gear speed reducers. Ask for your copy.

New bulletins on other types of Cleveland worm gear drives and worm-gear sets also available. Outline your needs. The Cleveland Worm & Gear Co., 3257 E. 80th St., Cleveland 4, Ohio.



CLEVELAND
Worm Gear
Speed Reducers

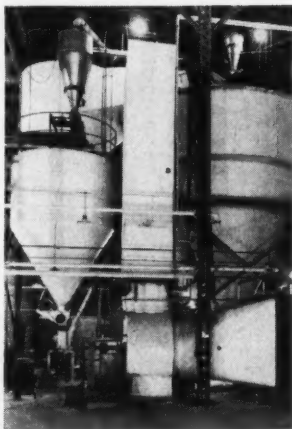
When inquiring check CP 7219 on handy form, pgs. 2-3

SPRAY DRY HEAVY CHEMICALS

at Low Cost

This high-capacity equipment is especially suitable for handling heavy chemicals. It is direct fired with oil or gas, and gives amazingly low-cost operation.

Typical uses: silica gel, kaolin clay, manganese sulfate, calcium carbonate, chrome sulfate, sodium phosphates.



Swenson Spray Dryers successfully handle a wide variety of organic and inorganic chemicals.

Send for Bulletin D-105

SWENSON EVAPORATOR CO.

Division of Whiting Corporation

15667 Lathrop Ave.

Harvey, Illinois

When inquiring check CP 7220 on handy form, pgs. 2-3

OCTOBER, 1951

PROCESSING EQUIPMENT

balance being dropped across a type H-1 ballast.

Lamp may be mounted in any position. Due to its softer light (it is less bright than uncorrected mercury arc lamps) it may be positioned lower and closer to the work than conventional mercury lamps. Rated life expectancy is about 4000 hours.

In order to achieve this life outdoors, the lamp must be protected against driving rain or large moisture laden insects which would crack the hot glass.

Source: Development of Lamp Div., Westinghouse Electric Corporation, Dept. CP, Bloomfield, N. J. . . . or for more information check CP 7221 on handy form, pages 2 & 3.

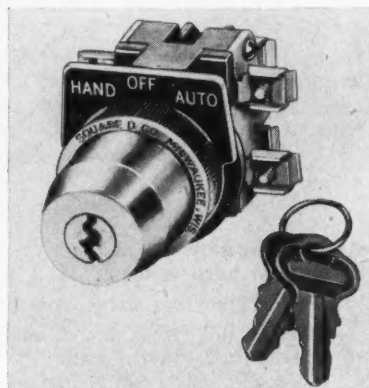
Locks in proper position, cannot be changed except with key . . .

heavy duty switch is available with two or three positions

Uses: For locking electrical circuits in desired position so that unauthorized personnel cannot tamper with them.

Features: Every possible combination of key withdrawal (locking) positions for two and three position selector switches is available.

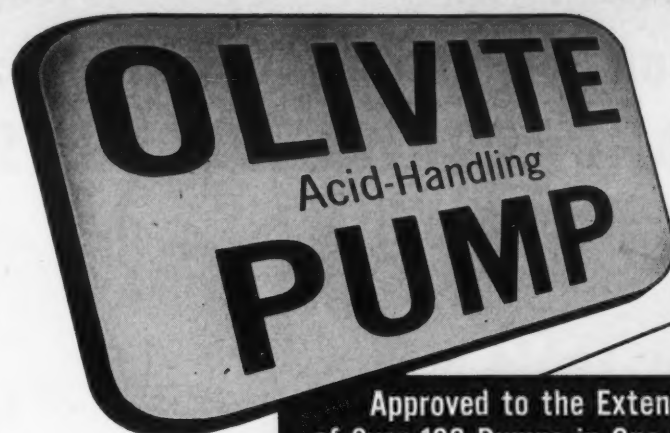
Description: Class 9001 Type TSK is an oil tight, key operated selector switch. Available as a two or three position lock, it can be adapted by means of cams and contact blocks



Three position locking switch

to meet almost any circuit requirement. Manufacturer's Bulletin 9001 T covers complete line of heavy duty, oil tight push buttons, selector switches, pilot lights, and related items.

Source: Product of Square D Company, Dept. CP, 4041 N. Richards St., Milwaukee 12, Wis. . . . or for more information check CP 7222 on handy form, pages 2 and 3.



Approved to the Extent
of Over 100 Pumps in One Plant

HERE, in the east there's a large chemical plant with extensive acid pumping operations. Not only is the total volume handled very large but several different solutions, both hot and cold, are involved.

In this one plant there are over 100 Olivite Acid Handling Pumps . . . with purchases spread over a period of several years!

Since pumping is an important step in this plant and continuity of operations vital, is there need for further evidence of the efficiency and durability of the Olivite Pump . . . of its practical usefulness for handling corroding solutions?

We suggest you look into its merits for your pumping requirements. In writing for Bulletin 308-R, please give details of your pumping requirements. The reason we ask for details is that we also have the O.D.S. Diaphragm Pump (Bulletin 309-R) which has outstanding advantages for handling solutions and slurries. One or the other of these pumps is sure to fit your requirements.



New York 18 — 33 W. 42nd St. Chicago 1 — 221 N. LaSalle St.
Oakland 1 — 2900 Glascock St. San Francisco 11 — 260 Calif. St.
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E. L. Bateman Pty., Ltd.
Johannesburg, Transvaal

When inquiring check CP 7223 on handy form, pgs. 2-3

Expansion at BRILLO includes: STANDARD AIRE BLOWERS



TO keep pace with the ever increasing demand for Brillo Manufacturing Company products, numerous plant additions have been made since 1913, when the company first started operations. Another million dollar expansion program is now underway—when completed it will provide increased floor space for greater productive capacity. In conjunction with this program Brillo has installed two 105B25 Standardaire Blowers, each having a capacity of 3600 c. f. m. at 1750 r. p. m. These blowers are in continuous round-the-clock service, supplying the necessary air to whisk away the metal turnings incidental to the processing of the famous Brillo pads. Standardaire Blowers are built to take this grueling service in stride. Rigid material specifications and skillful workmanship assure long, trouble-free performance, even when operating under extraordinary conditions. Standardaire Blowers are winning new users every day due to their ability to produce more air in less space with less power consumption.

For complete information write Dept. E35
READ STANDARD CORPORATION,
370 Lexington Avenue, New York 17, N. Y.

B L O W E R - S T O K E R D I V I S I O N

FORMERLY
The Standard Stoker
Co., Inc.
ONLY THE NAME IS CHANGED

READ STANDARD
CORPORATION

NEW YORK • CHICAGO • ERIE • YORK • LOS ANGELES

When inquiring check CP 7224 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Hardens for use after 30 min . . .

quick setting cement can be poured without tamping

Uses: Used for patching concrete floors, or other concrete surfaces. Can also be used to anchor bolts in concrete.

It is not recommended for extended outdoor service.

Features: Hardens to usable strength about 30 minutes after pouring.

Description: Por-Rok is mixed with water and poured into the hole to be patched. Only preparation necessary is cleaning of the hole by blowing out dust and broken pieces. Since it is a pourable liquid, the cement levels itself in the patch and no trowelling is needed to finish it. New cement patch will support light loads in 15 minutes after laying and is ready for average traffic in 1/2 hour from the time it is put down. Final cured strength of the material is better than ordinary concrete.

In order to anchor heavy machinery to a concrete floor, holes may be drilled which are large enough to clear the heads of cap-screws or bolts. These are inserted in the hole with threaded portion protruding and they are centered as desired. Por-Rok is then poured into the hole to bring its surface flush with the original surface. Cement hardens without shrinking so that even with heavy equipment the bolts can be drawn tight in 30 to 60 minutes after pouring.

Source: A product of The Hallemite Manufacturing Co., Dept. CP, 2446 West 25th St., Cleveland 13, Ohio. . . . or for more information check CP 7225 on handy form, pages 2 and 3.

Adjustable blow rings clean dust bags with little wear . . .

flexing and jet action of rings cleans bags without chafing

Uses: Adjustable blow ring is used for cleaning dust collector bags without removing them from the collector.

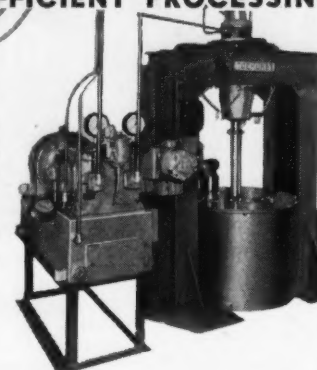
Features: Self-adjusting operation of the rings allows a close enough fit for good cleaning without wearing the cloth of the bags.

Description: Each filter bag in the collector is circled by a self-adjusting blow ring which travels up and down the bag, flexing it slightly and directing high pressure reverse air into the bag from all sides. Flexing and air jet

INFINITELY VARIABLE SPEED FOR MORE EFFICIENT PROCESSING

**DOES YOUR
PLANT HAVE
PROCESSES
THAT REQUIRE . . .**

- low speeds for loading . . . high speeds for final extraction?
- washing at some intermediate speed?
- positive, slow speed for unloading?
- several products with different filtering and washing characteristics to be processed in the same centrifugal?



Tolhurst Suspended Centrifugals are now available with infinitely variable speed hydraulic drive. Simply turn the hand wheel on the fluid drive unit to select the speed you want for each different operation. Tachometer indicates exact basket speed at all times. Wide choice of materials. Write for details and prices.

Tolhurst

CENTRIFUGALS DIVISION
American Machine and Metals, Inc.
East Moline, Illinois

When inquiring check CP 7226 on handy form, pgs. 2-3

SELF-CONTAINED SELF-CONTROLLED SELF-SUFFICIENT SELF-RELIANT

The patented Farris Stacon Temperature Regulator is easily the most independent regulator available today. It's unique. It stands alone. It's trustworthy. It needs no watching. It's perfect for the man who wants no cause for worry . . . who wants to relax in the sure knowledge that his temperatures are constant.

Here's why Stacon stands alone in the field. It has no packing glands to leak or bind . . . the stem moves freely. The liquid in the bulb flashes to vapor in the power bellows, assuring hairtrigger response to move the disc. It operates with unbelievable accuracy—to within plus or minus 1 degree—and it operates with that accuracy under all conditions. Stacon provides air-operated accuracy at low, self-operated cost.

Get the details on the one truly outstanding temperature regulator—Stacon. Send for Bulletin 50-1000 to get all the details.

*Patented and Patents Pending

Farris Stacon Corporation
100 COMMERCIAL AVE. PALISADES PARK, N. J.

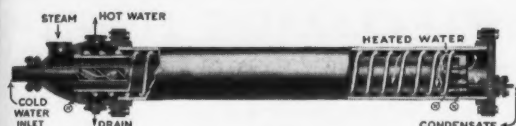
When inquiring check CP 7227 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Champ Hot Water Team!

JOHNSON

Heater plus steam



It's one of industry's favorite ways to heat water or process liquids of all sorts. Just hook up the Johnson "Instant" Heater to your high pressure steam lines; no reducers needed. Efficient design provides maximum contact between the water and steam-heated surfaces, transfers more heat more rapidly. Whatever your liquid heating job, get the Johnson money-savings facts.

Sizes for all needs; write for literature.



The Johnson Corporation

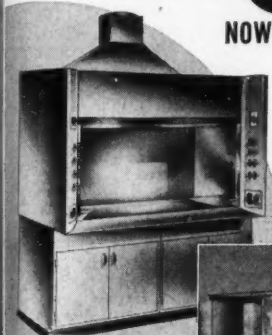
826 Wood St., Three Rivers, Mich.

When inquiring check CP 7228 on handy form, pgs. 2-3

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Developed especially for radioisotope laboratories. Design approved for use by Oak Ridge Institute of Nuclear Studies. Stainless steel interior and working surface. Bonderized cold rolled steel exterior. Kewaunee quality throughout. For full information, ask any Kewaunee representative for our new "Radioactive Equipment" folder. Or write direct.

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Kewaunee Mfg. Co.

J. A. Campbell, President

5011 S. Center Street, Adrian, Michigan

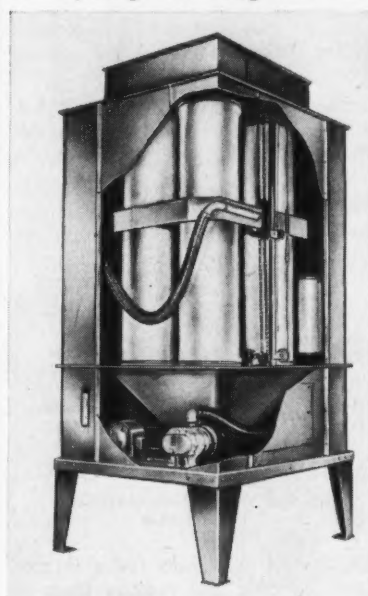
We also manufacture wood and metal laboratory equipment.

When inquiring check CP 7229 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

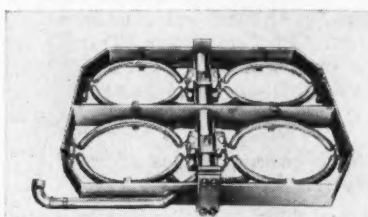
actions combine to dislodge the dust accumulated inside the bag. Cleaning action causes the dust to fall and drop into regular collection hopper.

Self-adjusting blow rings are held



Bag-type collector with ring frame in place and operating. Hose connection brings high pressure air to traveling rings

snugly against the filter bag in spite of dimensional changes due to bag shrinkage or stretching. Each blow ring is made in two sections (see illustration



Ring frame — showing self-adjusting half rings which conform to bag surface

of ring in frame) which expand as necessary to conform to the bag's diameter. Frame supporting the rings is so mounted that it is free to follow any vertical misalignment of the bags.

Blow rings themselves are precision aluminum cast tubes with slots milled along their inner surface. High pressure air in the tube flows through the slot and into the bag. All surfaces of the rings are hand polished and deburred to prevent damage to the bags.

Source: Development of Turner and Haws Engineering Company, Dept. CP, 87 Gardner St., West Roxbury, Mass. . . . or for more information check CP 7230 on handy form, pages 2 and 3.

SWECO SEPARATOR VIBRATING SCREEN

years ahead in solving processing problems

- Spiral-uphill motion insures production capacities with laboratory accuracy of product.
- Designed with only three (3) moving parts.
- Separate wet or dry from 1 mesh to 400 mesh.
- Consumes less power than 200-watt light bulb.
- Eliminate plant shutdown — guaranteed screen cloth life.
- No transmitted vibration — mount unit on skids, wheels, tall building, top of bins, wood floors, etc.
- Explosion proof totally enclosed motor.
- Tumbled material — no floating dust.
- Triple screen capacity per sq. ft. of area.



Model E-3D

Reduce your costs and increase your profits and plant efficiency with the SWECO Separator. Send for complete information.



SEPARATOR DIVISION, DEPT. CP
SOUTHWESTERN ENGINEERING COMPANY
4800 Santa Fe Avenue, Los Angeles 58, Calif.

Name Dept.
Company
Address
City Zone .. State
Request information regarding separation of
wet ☐ or dry ☐ on single ☐ or multiple ☐ Deck Sweco using
mesh cloth at Lbs. ☐ or Ton ☐ capacity per hour ☐ per minute ☐.

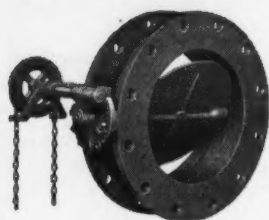
Used in the following, and many other, type plants: Ceramic; Detergents; Sulphur; Fertilizer; Aggregates; Perlite; Tungsten Ore; Magnesium Oxide; Potassium Sulfide; Sodium Carbonate; Dry Clay; Ground Glass; Abrasive Cleaners; Pumice; Waste Disposal; Catalyst.

When inquiring check CP 7231 on handy form, pgs. 2-3

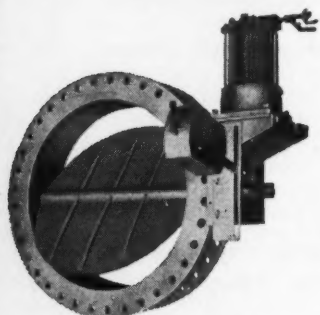
Easy Positive Flow Control and Quick Shut-Off

for Controlling

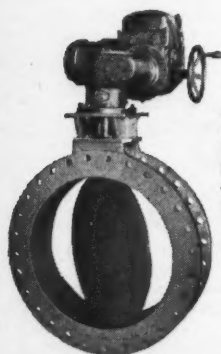
- Air supply to boilers, furnaces, reactors, dryers, kilns.
- Air or gases, clean or contaminated, corrosive or abrasive; flue gases and fly ash.
- Effluent from equipment or tanks.
- Dry or wet chemicals, pulp, materials from processing equipment, tanks, bins, hoppers, pneumatic conveyors.
- Vacuum operations; sewage; solvent recovery; powdered fuel.



Flanged butterfly valve with chain wheel control; may also be hand wheel or lever control.



Large butterfly valve with air or hydraulic cylinder.



30" butterfly valve for 60 p.s.i. line pressure; equipped with Limit torque motor operator and auxiliary hand wheel.

Threaded butterfly valve, 1" to 4" sizes, manual or automatic control.

W. S. ROCKWELL Valves

BUTTERFLY TYPE

Full unrestricted flow of water, slurries, semi-solids, air or gas, and quick, positive, accurate regulation and shut-off. Built of any metal or rubber-lined. Pipe sizes 1" to 72". Pressure standard to 50 p.s.i. and special for higher pressures. Made for any temperature from sub zero to as high as 1800° F.

Control — Manual: lever, hand wheel, chain wheel, chain lever, etc. Automatic: electric motor, air diaphragm, air or hydraulic cylinder, solenoid, float, or other types, with positioners and special remote control mechanisms, if desired.

Wafer Butterfly Valves — rugged, lightweight, require only 1 set of bolts; sizes 4" to 72"; any type of control.

SLIDE TYPES

Standard—Made in threaded or flanged 1" to 20" sizes, with pull handle, lever or wheel control. Built of any required metal.

"Kwikleen" Type—For fluids containing solids that clog ordinary valves. Easy to clean without removing from the line by simply removing bottom clean-out plate and blowing or washing out the valve. All manual controls and also with air cylinders. Heavy duty "Kwikleen" Valves are made for 60 p.s.i. operating pressure.

Write for Catalog

High pressure, "Kwikleen" slide valve for fluids that clog valve or for granular materials; easy to clean or wash; tight seating.



W. S. ROCKWELL COMPANY

220 Elliot Street

Fairfield, Conn.

When inquiring check CP 7232 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

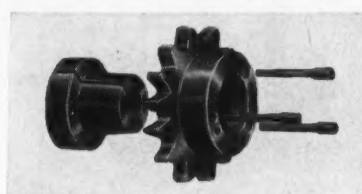
In 1/2 through 1-3/4" pitch, sprockets are changed without reboring . . .

distributors can give immediate 'off the shelf' service

Uses: Interchangeable hub sprockets for maker's "QD" V-belt sheave hub.

Features: Distributors can give immediate 'off the shelf' service, without reboring on sprockets as well as V-sheaves.

Description: Sprockets are tapered-bored to receive the tapered hub. Bolts are provided to pull the sprocket onto



Exploded view of interchangeable hub sprocket

the tapered split hub for a tapered drive assembly and positive press fit on the shaft.

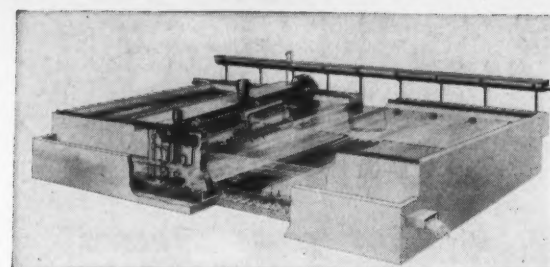
Tapped holes in sprocket permit use of pull-up bolts as jack screws to break the tapered fit when dismounting. Set screw over the keyway holds key in position. Sprockets are stocked in 1/2 through 1 3/4" pitch.

Source: QD sprockets are made by Fort Worth Steel and Machinery Co., Dept. CP, Fort Worth, Texas. . . or for more information check CP 7233 on handy form, pages 2 and 3.

Three general types of electric heaters

Several different applications are shown for the manufacturer's screw-in, portable automatic immersion and circulation type electric heaters in this four-page bulletin. Some typical uses are: preheating oil and water; heating oil-jacketed plastics process kettles; melting soft metals, paraffin, asphalt, lanolin, and other viscous fluids; and controlling plating solution temperatures.

Capacities of the heaters are 500 w to 100 kw, and they can supply heat from 60° to 550°F. Heating units for immersion work are available with sheaths of copper, stainless steel, alloy and lead — depending on the corrosive action of the materials being heated. "Packaged Electric Heaters" is issued by Edwin L. Wiegand Co., Dept. CP, 7500 Thomas Blvd., Pittsburgh 8, Pa. When inquiring specify CP 7234 on handy form, pages 2 & 3.

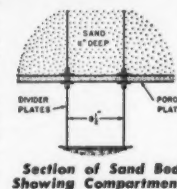


SELF-CLEANING FILTER an engineering dream come true!

Here is a sand filter which cleans itself — automatically — with no interruption whatever to the filtering operation. No shutdown or change-over is necessary while cleaning is in progress.

The secret lies in its special, compartmented filter bed and traveling backwash mechanism which automatically cleans one compartment at a time — on a predetermined time cycle or with increase in head pressure.

And . . . it's highly efficient, removing 75% to 80% of the suspended solids — 90% or better if chemicals are added. May be used for paper plant supply water or for recovery of fibre and filler from "white water." See our exhibit at the Chemical Show in New York. Ask for Bulletin 46-13.

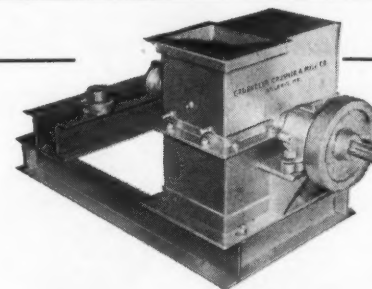


Section of Sand Bed Showing Compartments

HARDINGE

COMPANY, INCORPORATED

YORK, PENNSYLVANIA—240 Arch St. Main Office and Works
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When inquiring check CP 7235 on handy form, pgs. 2-3



Stainless Steel PULVERIZER SHREDDER

for specialized refining

- ORGANICS
- FOOD STUFFS
- VEGETABLES
- FOOD PUREES, etc.

Gruendler Pulverizers available with accessories to produce from 10 to 300 mesh minus, depending on material.

Also Mfgs. of Mixers and Blenders

Write for Bulletin 11 B.

GRUENDLER CRUSHER & PULVERIZER CO.

Plant & Executive Offices —

2915 North Market

St. Louis 6, Mo.

LABORATORIES, 1911 North Market, St. Louis, Mo.

When inquiring check CP 7236 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

Generates nitrogen gas with a controllable hydrogen content . . .

gas is completely free from oxygen; hydrogen controllable from 0.25 to 30%

Uses: Produces pure nitrogen with a controllable hydrogen content by reacting ammonia with air in the presence of the Engelhard catalyst.

When operated to produce pure nitrogen with only a trace of hydrogen (0.25%), the generator can serve the chemical, pharmaceutical, varnish, and petroleum fields. When operated to produce a reducing atmosphere, it serves numerous processes for heat treating metals.

Features: Gas generated is completely free of oxygen, consisting entirely of nitrogen, hydrogen, and water vapor. Hydrogen content can be varied at will to meet changing requirements and can be maintained at any desired percentage between 0.25 and 30 within close tolerances. This flexibility permits use of the most economical gas composition for the job at hand.

Description: The "Nitroenal" nitrogen gas generator requires no outside source of power, except when starting, because the catalyst reaction is exothermal. Operation is fully automatic — no personnel are required. Any changes in pressure or load are fully compensated for. Gas is delivered at a pressure of 2 psi. Maintenance costs are reported to be nil because the catalyst lasts indefinitely.

Maker reports there is no danger of explosion. Gas composition leaving the generator remains constant within 0.25% of the set point, and a direct indication of gas composition shows on a meter at all times. Operation can be anywhere in range from 25 to 100% of rated capacity without change in outlet gas composition.

NITROENAL GENERATOR

Gas Ratios/1000 cu ft Finished Gas

	0.25	1.0	3.0	6.0	20	25	30
Hydrogen, %	301	304	309.3	316.7	350	370	386
Ammonia, cu ft	1070	1064	1033	990	790	715	640

Ratings

Model	Minimum	Maximum
100G	25	100
500G	125	500
1500G	375	1500
3000G	750	3000
6000G	1500	6000
10,000G	2500	10,000

Source: Development of Baker & Co., Inc., Dept. CP, 113 Astor St., Newark 5, N. J. . . . or for more information check CP 7237 on handy form, pages 2 and 3.

Up to 1750 hp, 1800 rpm available in squirrel-cage induction motors

Construction features of large end-shield bearing squirrel-cage induction motors are described in six-page bulletin. Built for a wide range of applications from central station auxiliary to general industrial drives, these motors are available in ratings and speeds to 1750 hp at 1800 rpm. Cutaway illustration points out and describes such features as welded stator yoke, long-life stator winding, capsule-type housings, split sleeve bearings, silver-brazed cage, large discharge openings and inherently drip-proof design. A chart gives information as to the motors available in commonly used ratings and speeds. Bulletin 05B7542A is issued by Allis-Chalmers Manufacturing Co., Dept. CP, 1151 S. 70th St., Milwaukee 1, Wis. When inquiring specify CP 7238 on handy form, pages 2 and 3.

"MUST" Reading

for Plant Engineers

Life extension for condenser tubes

Table of contents

PREVENTIVE METALLURGY TO MAINTAIN TUBE HEALTH	page 3
The life span of a condenser tube depends upon the water and operating conditions and the alloy selected.	6
PROTECTIVE FILMS ARREST CORROSION	10
Life expectancy is prolonged if protective films form soon after service begins.	11
REVERE MINUTE MEN IN CONDENSER TUBE WAR	
"Trouble shooters" serve as liaison between tube users and Revere Research Laboratory.	11
DEVELOPMENT WORK IN TUBE ALLOYS	
Experiment in Revere laboratories develops basic knowledge of tube performance under variable conditions.	
Various types of corrosion encountered	

• We doubt very much if you have ever read a booklet on Condenser Tubes, quite like this one.

Plant engineers should find it of unusual interest particularly with present restrictions on copper and its alloys making it more important than ever that every last ounce of use be squeezed out of the condenser tubes in their plants.

This 28-page booklet includes data on various copper alloys, photos of cut-away tube sections showing various types of corrosion encountered in condenser tube service and photomicrographs showing the grain structure of different kinds of metals under varying operating conditions.

Send for your copy today. Please make request on your firm's letterhead. Thank you. Address Department P.R., Revere Copper and Brass Incorporated, 230 Park Avenue, N. Y. 17, N. Y.

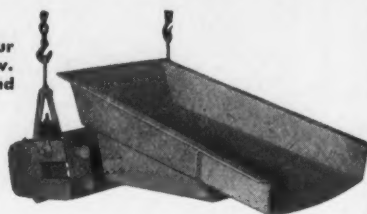
REVERE 150th YEAR SERVICE AMERICA
COPPER AND BRASS INCORPORATED
Founded by Paul Revere in 1801
230 Park Avenue, New York 17, N. Y.

Mills: Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y.—Sales Offices in Principal Cities, Distributors Everywhere.
SEE "MEET THE PRESS" ON NBC TELEVISION EVERY SUNDAY

When inquiring check CP 7239 on handy form, pgs. 2-3

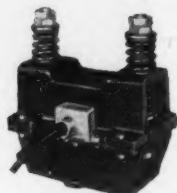
VIBRATORY FEEDERS

Up to Hundreds of Tons per Hour
— Variable Control of Flow.
Available in Various Sizes and
Trough Styles.



BIN VIBRATORS

Eliminate Arching and Plugging — Make
Stubborn Materials Flow Freely. Small
Models for Little Hoppers — Large
Models for Big Bins and Bunkers.



SYNTRON

Controlled "Vibration" For Material Handling Efficiency

Free-flowing bins, hoppers and chutes — variable control of material flow, feeding from pounds to hundreds of tons per hour — weigh feeding and batching — of bulk materials, hot or cold, dry or damp, coarse or fine — add up to faster processing at lower costs.

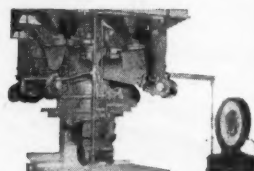
Syntron Electromagnetic Vibration, without the use of wearing, mechanical parts such as spiral screws, cams, etc., assure cheaper, faster operation and low maintenance.

Write for Catalog Information



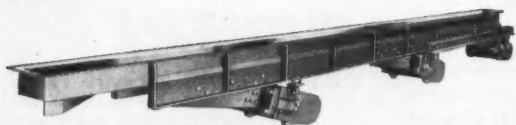
BATCH WEIGH PLANTS

Accurate, automatic weighing of multiple
batches for mixing by remote push but-
ton control is achieved through auto-
matic, scale-controlled operation.



LONG "VIBRATORY" CONVEYORS

For Conveying Extremely Hot or, in a
Sealed Tubular Trough, Dusty, or Poison-
ous, or Clean, Pure Materials.



SYNTRON COMPANY

110 Lexington Avenue

Homer City,

Penn.

When inquiring check CP 7240 on handy form, pgs. 2-3

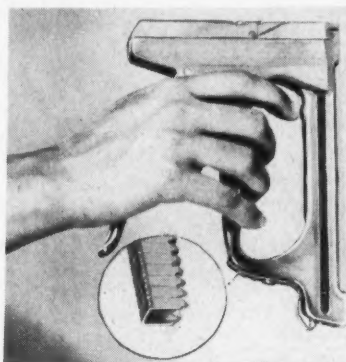
PROCESSING EQUIPMENT

Only one hand needed to operate stapler . . .

reported to have 5 times driving
power of similar units

Uses: Staples paper, fiber, and
metal tags, shipping instructions, car-
ton liners, etc., to wood surfaces.

Features: Pocket-size stapling gun
is reported to have 5 times the driving



Heavy-duty stapling gun for one-
hand operation

power of similar units. Fires staples
as fast as a Colt automatic.

Description: Operator holds sta-
pling gun in one hand and shipping
tag in the other. Staples are heavy-
duty and self-clinching.

Source: Development of The Heller
Company, Dept. CP, 2153 E. Superior
Ave., Cleveland 14, Ohio . . . or for
more information check CP 7241 on
handy form, pages 2 and 3.

Expansion joints and bellows catalog

Containing over 78,000 possible com-
binations, illustrated 40-page catalog
serves as a reference guide to manu-
facturer's industrial joints and aircraft
bellows. Several different designs are
described as well as many types of
bellows applications for the purpose of
absorbing motions resulting from pres-
sure or temperature changes in con-
ducted gases or liquids.

Bellow assemblies range in sizes from
1/2 to 72" pipe covering a complete
line of pressures from vacuum to
1000 lb. Fabrication is from stain-
less steel and a variety of heat and
corrosion-resistant alloys. Tabulated
material includes data on thermal ex-
pansion of steel pipe in inches per
100 feet based on 60°F installation
temperature. Catalog 51 is issued by
Solar Aircraft Co., Dept. CP, 2200
Pacific Highway, San Diego 12, Calif.
When inquiring specify CP 7242 on
handy form, pages 2 and 3.

FLUOROFLEX-T* rod and sheet give you

TEFLON

at its best



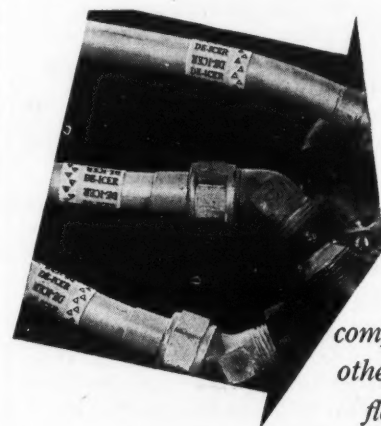
FLUOROFLEX-T is "Teflon" pro-
cessed under rigid control in new
equipment expressly designed to
bring out utmost inertness and sta-
bility in this material. Uniform in
density and dimension, Fluoroflex-
T sheets are exceptionally flat —
easier to work with. Rods are free
from internal strains, cracks, or porosity — easier to machine.
Teflon withstands -90°F to +500°F. It is "self-lubricating."
It's completely unaffected by virtually all chemicals. Which
makes Fluoroflex-T the ideal packing, gasket or seal for
processing equipment. Rods from 1/4" to 2" diameter; sheets
21" x 21" in 1/16" to 1 1/2" thickness. Ask us to quote on
your needs. RESISTOFLEX CORPORATION, Belleville 9, N. J.

*Reg. trade name of Resistoflex Corp. for products manufactured from Teflon resin.

RESISTOFLEX

For out of the ordinary
engineering with synthetics

When inquiring check CP 7243 on handy form, pgs. 2-3



new...
efficient
method of
marking
fuel, oil,
gas, hydraulic,
water, oxygen,
compressed gas and
other industrial
flow lines

Speed production, maintenance and repair opera-
tions with E-Z Code Fluid Line Markers. Exten-
sively used in the aviation industry, E-Z Codes are
now being used as flow-line markers in many indus-
trial applications.

E-Z Codes are pressure-sensitive and are applied
without moistening with fingertip pressure. They
will not pop, peel or curl even in extreme changes
of heat and humidity. They are available in stand-
ard symbols and codes for all types of flow-lines.
They conform to the new international AND-10375
as well as AAF-27643 and can be produced to your
size and printing specifications. Learn the facts on
E-Z Code Fluid Line Markers.

SEND FOR SAMPLES AND DETAILS

E-Z CODE SELF-ADHESIVE MARKERS

Western Lithograph Co. Dept. CP-9, 600 E. Second Street,
Los Angeles 54, Calif., Box 3804, St. Louis 22, Mo.

When inquiring check CP 7244 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

Medium volume copying machine offers 46" printing width, exposure rate to 95"/min . . .

requires no installation, just a connection to a 60 cps, 115 v, alternating current line

Uses: For the medium volume production of prints from tracings, engineering drawings, and other large sized technical originals.

Features: Low cost and wide printing width. Operation of machine does not require special training. Operator feeds the sensitized medium into the machine with the translucent original to be copied. Copies are processed by the machine and are stacked ready for use.

Description: Copies may be made on sensitized paper, acetates, films and cloths. No special lighting is needed, and copies are handled safely under ordinary factory or



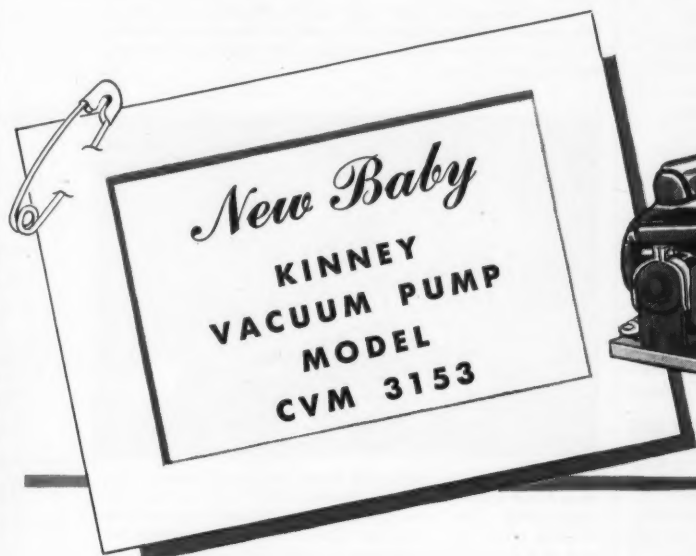
office illumination. Dark rooms, developing trays, etc., are unnecessary, and, since no vapor developer is used, there is no need for exhaust ducts or extra ventilation.

Source: Bruning Copyflex machine, Model 20, is product of Charles Bruning Company, Inc., Dept. CP, 100 Reade St., New York 13, N. Y. . . . or for more information check CP 7245 on handy form, pages 2 and 3.

Guide tells proper extinguisher to use on various type fires

Two-color, 12 x 22" poster tells employes the correct fire extinguisher to use on rubbish, wood, inflammable liquid or electrical type fires. Suitable for posting in the plant at strategic locations, and for use in plant fire schools and employe lectures, the guide illustrates all standard type fire extinguishers. The poster graphically explains the proper use of soda acid, pump tank, foam, carbon dioxide, carbon tetrachloride, and dry powder extinguishers.

Guide also indicates which extinguishers are subject to freezing, as a help in proper placement in heated and unheated areas. "Randolph Fire Extinguisher Guide" is issued by the Randolph Laboratories, Inc., Dept. CP, 8 E. Kinzie St., Chicago 11, Ill. When inquiring specify CP 7246 on handy form, pages 2 and 3.



The Model CVM 3153 is the newest and smallest member of the complete Kinney Vacuum Pump family. Compare it with any other mechanical vacuum pump in its class for:

FREE AIR DISPLACEMENT (2 cu. ft. per min.)

POWER (1/4 HP motor)

ULTIMATE LOW ABSOLUTE PRESSURE (0.1 micron or better)

SIZE (14 1/4" x 10 3/4" x 13 1/4" high)

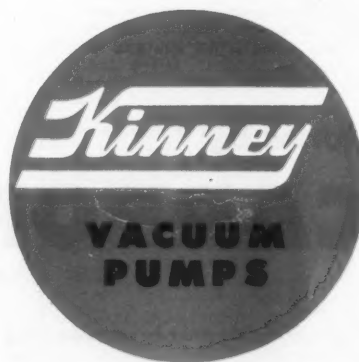
WEIGHT (only 70 lbs. complete)

Compare its quiet operation, its ease of starting, its sound construction . . . and you'll see why Model CVM 3153 is an important step forward in vacuum processing.

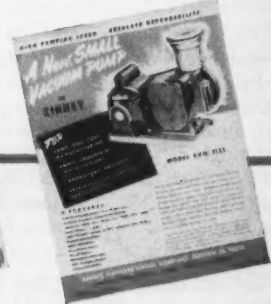
Wherever small size and big performance are required, put Kinney Model CVM 3153 to work. Use it in the laboratory. Use it in full scale processing installations, by itself or as a backing pump. Use it in permanent installations or as a portable unit for on-the-spot repair, service, or test work.

There's a Kinney Vacuum Pump for every service, from the big Single Stage 702 cu. ft. per min. Model 181420 to our "New Baby", Model 3153. KINNEY MANUFACTURING CO., 3573 Washington St., Boston 30, Mass. Representatives in New York, Chicago, Cleveland, Houston, New Orleans, Philadelphia, Los Angeles, San Francisco, Seattle.

Foreign Representatives: General Engineering Co. (Radcliffe) Ltd., Station Works, Bury Road, Radcliffe, Lancashire, England . . . Horrocks, Roxburgh Pty., Ltd., Melbourne, C. I. Australia . . . W. S. Thomas & Taylor Pty., Ltd., Johannesburg, Union of South Africa . . . Navelectric, Ltd., Zurich, Switzerland . . . C.I.R.E., Piazza Cavour 25, Rome, Italy.



Write today for
Bulletins V51 and
V51-A



When inquiring check CP 7247 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Single or multiple installation air conditioners offered

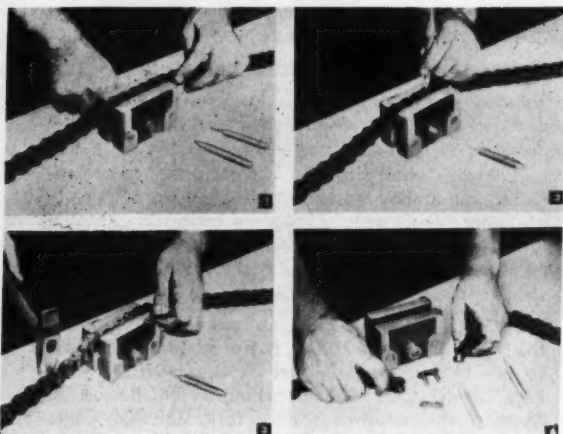
Air conditioning units described in four-page bulletin are particularly applicable for installations where space or cost of duct systems is prohibitive or where a number of units is more economical than a central system. General specifications report on basic assembly, cabinet construction, controls, operating characteristics, fans and motors, type filters and coil construction. Units are available for both floor and ceiling installation, and dimensional data cover five units of each type. Tables show cooling coil capacities and capacity in Btu/hr when heating with hot water. Bulletin 1149 is issued by the Marlo Coil Co., Dept. CP, 1635 Manchester Rd., St. Louis 10, Mo. When inquiring specify CP 7248 on handy form, pages 2 and 3.

Roller chain cut from reel to any size desired when held in vise . . .

single or multiple strand roller chain taken apart in a few minutes; vise jaws shaped for chain

Uses: For simple, rapid disassembling, repairing and connecting roller chain.

Features: Single or multiple strand roller chains may be taken apart in a few minutes. Vise permits stocking most efficient coils for every requirement. (Most sizes of roller chains are now available in coils or reels.) Thus,

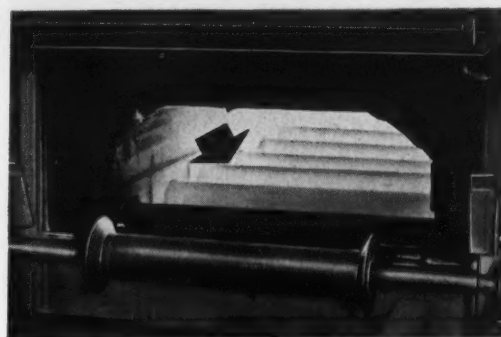


1) Chain placed in vise; 2) pins struck, plate freed; 3) freed plate removed; 4) chain removed, links added

instead of keeping many lengths of chain, for example half-inch pitch, to meet numerous requirements, vise permits stocking one reel from which all needs may be met. Accumulation of small lengths of left-over chain is avoided.

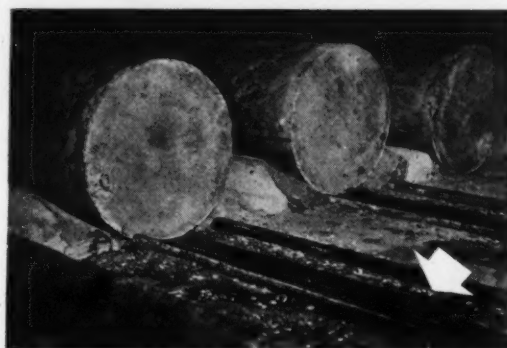
Description: Chain vise is made of forged steel, with hardened jaws specially shaped for adapting to various chain sizes. Approximate adjustments are made before chain is inserted permitting rapid clamping. It is made in two sizes. No. 1 is for single roller strand chain $\frac{1}{2}$ through 1" pitch, for double pitch chains of 1, $1\frac{1}{4}$ and $1\frac{1}{2}$ " pitch and for double strand chains of $\frac{1}{2}$, $\frac{5}{8}$ and $\frac{3}{4}$ " pitch. No. 2 is intended for single strand chains of 1 through 2" pitch and for double strand chains from 1 to 2" pitch.

To cut chain, using this roller chain vise, number of pitches required is first determined, taking into consideration how many connecting and offset links are required. Total length to be cut from reel is then measured. When



Gas Machinery Company

HEAT? Instead of using metal rollers, the manufacturer of this annealing furnace applied a Super Refractory roller-hearth. As a result, the hearth stays straighter, lasts longer, and reduces marking and pick-up.



ABRASION? The skid rails supporting these brass billets were formerly made of alloy. The alloy skids required complete replacement every two to five weeks, constant maintenance between times. When replaced with Super Refractory skids, the new rails required no attention for over three years.



CORROSION? An interesting application of Super Refractories where no heat is involved is this wire guide. It supports newly drawn steel wire as it passes along the bottom of a tank during zinc coating. It seems to be the only material that will stand up at all under the cutting action of the wire and the corrosive action of the plating solution.

Super Refractories by

CARBORUNDUM

TRADE MARK

Refractories Division

The Carborundum Company, Perth Amboy, N. J.

"Carborundum" is a trademark indicating manufacture by The Carborundum Company

CAUGHT for heat

Here's a group of materials often used in place of certain metals—Super Refractories by CARBORUNDUM. Possessing properties seldom associated with refractories, these materials have often proved superior to the metals they replaced; have been invaluable where critical nickel, chrome, or cobalt alloys were involved.

For example, Super Refractories have replaced metals for such diverse applications as: skid rails, muffles, wire guides, radiant tubes, roller hearths, hot blast mains, brazing fixtures, recuperator tubes, etc. In these cases, they not only released vitally needed metals but outperformed them (by lasting longer than the metals—while also increasing the capacity of the equipment).

As you look over the properties of Super Refractories listed opposite, draw a mental comparison with your needs. Exactly what makes an alloy essential in this place, or that? Is it refractoriness? conductivity? abrasion? corrosion? strength? It's surprising how often you'll find Super Refractories inherently better—and far less expensive—than metals.

It will pay you to investigate these interesting Super Refractories . . . now, before the metals cupboard is bare. Won't you write or call us today?

IN THE SQUEEZE resisting metals?

SUPER REFRACTORIES ARE IDEAL WHERE

HIGH HEAT IS INVOLVED. Super Refractories are very strong and durable—can be safely used at temperatures over 3000 F. Compare this with 25-12 chrome-nickel steel, for example, which loses strength rapidly over 1500 F. and cannot be used with safety above approximately 2100 F.

ABRASION OR EROSION ARE PRESENT. Two types of Super Refractories are within one index point of diamond hardness! They are the toughest known materials for large scale commercial use. They will distinctly outwear metals—especially at furnace temperatures.

HEAT CONDUCTIVITY IS NEEDED. At elevated temperatures, one Super Refractory material conducts heat *almost as rapidly as chrome-nickel steels*. It's widely used in equipment involving heat transfer. There are also Super Refractories which are good insulators, particularly at high heats.

STRENGTH IS IMPORTANT. Super Refractories are generally very strong, and *retain* their strength at temperatures where metals become unusable. For example, the modulus of rupture of one composition averages 3100 psi, at 2460 F. No commercial tonnage refractories have greater strength.

CHEMICAL ACTION IS PRESENT. In general, most Super Refractories are either neutral or acid in nature—are widely used where chemical inertness is important.

SPECIAL SHAPES ARE INDICATED. Practically all Super Refractories are available in a wide variety of construction shapes molded to close tolerances—including fitted joints, tubes, etc.

USE THIS BOOKLET TO CHECK UP. This new booklet contains an easy-to-read analysis of the principal characteristics of these unique Super Refractories. The coupon will bring you the story—or one of our engineers will be happy to talk over your problems. We believe it could be mutually profitable.



Dept. S-101
Refractories Div., The Carborundum Co.
Perth Amboy, New Jersey

Please send me your free booklet on the properties of Super Refractories.

Name _____
Position _____
Company _____
Street _____
City _____ Zone _____ State _____

When inquiring check CP 7249 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

chain is placed in vise at point where cutting is required, a blunt end punch and hammer is used to strike one pin and then the other on the same pin link. This is repeated until the outside plate is free. Freed side is then removed. The pin then falls out or can be removed by hand. All that is then necessary is to remove chain from vise and add necessary connecting links and offset links.

Double strand chain is just as simple and easy to cut.

Source: Baldwin-Duckworth Div., Chain Belt Co., Dept. CP, 1600 Bruce St., Milwaukee 4, Wis. ... or for more information check CP 7250 on handy form, pages 2 and 3.

Control on 2 psi air pressure makes valve serviceable for exacting relief needs . . .

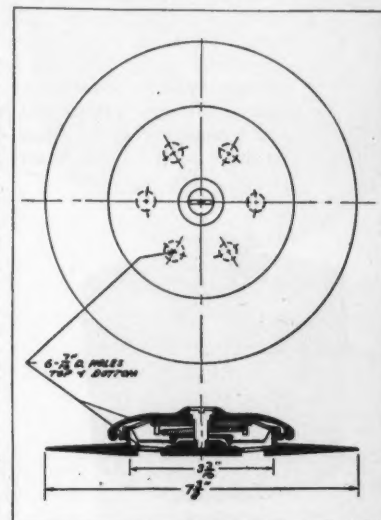
only 1-1/8" high, 7-3/8" overall diameter; attaches to either flexible or rigid surface easily

Uses: Originally developed for use on inflatable rubber boats, it is suitable for applications in which accurate pressure control of air or gas is vital. Especially suitable for use as a compact low pressure relief valve.

Features: Only 1-1/8" high and 7-3/8" overall diameter.

Description:

Working parts are mounted in a flexible rubber base and are fully protected by a steel cap and rubber shield. Components are fabricated from stainless steel and natural, or solvent-resistant, rubber stocks. It provides accurate control of 2 psi air pressure and large volume exhaust at 3 psi. It has check valve characteristics because it permits only a one-way flow.



Pancake-type relief valve

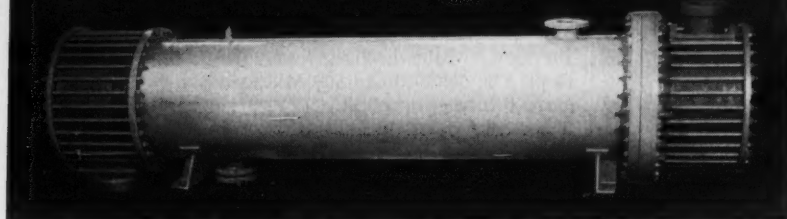
Valve can be attached to either flexible or rigid surfaces. Attachment to flexible surfaces is accomplished by cementing valve base to unit to control. For mechanical mounting, the valve is supplied with bolt holes in the base.

Source: Type A-120 relief valve is available from The Andrews-Alderfer Processing Co., Inc., Dept. CP, 132-138 Ash St., Akron 8, Ohio. . . or for more information check CP 7251 on handy form, pages 2 and 3.

Deals with power equipment for paper mills

Illustrated, 16-page bulletin covers power generation equipment, distribution systems for the plant, substations, and control panels. In all cases, material is concerned with power equipment for the pulp or paper mill and similar applications. Bulletin GEA-5521 is issued by General Electric Co., Dept. CP, Schenectady 5, N. Y. When inquiring specify CP 7252 on handy form, pages 2 and 3.

Permanently Impervious to HCL or Equivalents



IMPERVITE

HEAT EXCHANGERS — ABSORBERS

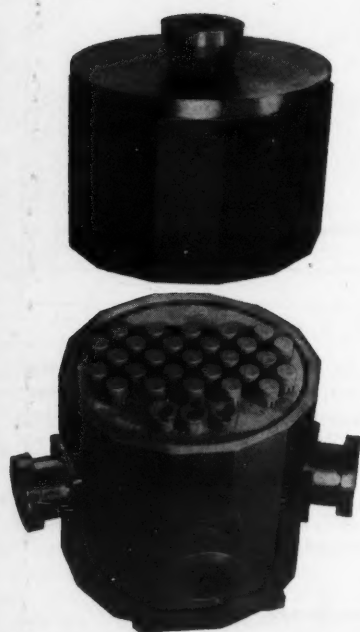
Even such a tough corrosive as Hydrochloric Acid will not break down the resistance of Impervite, made from graphite impregnated with special-formula resins developed exclusively by Falls Industries. Typical of the many types of heat exchangers made by Falls from Impervite is the 158-tube horizontal tube-and-shell unit shown above. Also: 7, 14, and 24-tube stock units or special designs up to 222 tubes. Impervite absorbers for processing gases from 40% to 100% HCL. Plate or immersion heaters to any capacity.

IMPERVITE TOWERS

for absorption, scrubbing, fractionation, extraction and related processing are made in five stock sizes with 12", 15", 18", 24" and 30" ID sections easily assembled to any suitable height. Sections up to 24" are monolithic cylinders machined from solid Impervite. Larger sizes are machined segments permanently cemented together. Typical 33" sections at left are top and base of special 36-foot tower.

PIPES, VALVES, FITTINGS of Impervite, all with machine threads, are available in sizes from 1/2" to 10" ID. Falls also offers chemically impervious pumps, with Impervite at all exposed points.

SEE PAGES 685 TO 688 CHEMICAL INDUSTRIES CATALOG, OR WRITE FOR IMPERVITE BULLETIN.



Falls Industries, Inc.

AURORA ROAD - SOLON, OHIO

When inquiring check CP 7253 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Motor starters for hazardous spots . . .

alloy housing possesses high tensile strength

Uses: Under those conditions where the atmosphere contains explosive dusts, vapors, or wherever excessive moistures prevail.

Features: Starters are small and light. Special Feraloy housing has high tensile strength, resistance to corrosion, and ability to withstand large internal pressures. Hood and base are of alkyd plastic possessing high arc resistance.

Description: Three classes in this group of magnetic starters are specified according to conditions of the installation: explosive gases and vapors, explosive dust and fibers, and moisture conditions. Approved by UL, starters are offered for motors of the following hp ratings: 1, 1 1/2, 2, 3, 5, 7 1/2, 10, 15, 25, 30, 50 and 100.

Use of straight-through wiring aids in quick identification of circuits and elimination of crossing, looping and U-bending. Action of magnet incorporates knee-action fulcrum to multiply leverage and utilize full magnetic power in making the contact. Measurements of units range from 8-7/8" high, 8-3/8" wide and 6" long, to 23" high, 17-7/8" wide and 11" long.

Source: Industrial Control Division, The Arrow-Hart & Hegeman Electric Co., Dept. CP, 103 Hawthorn St., Hartford 6, Conn. . . or for more information check CP 7254 on handy form, pages 2 and 3.

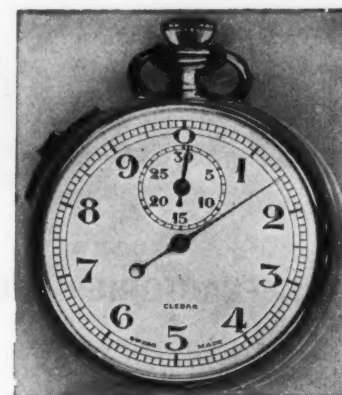
Illustrates results of centrifugal mixing

Multi-colored, four-page bulletin presents "before and after" pictures of results obtained by use of centrifugal mixers. Ingredients discussed in this treatment are: polystyrene powders, glass fiber and plastic powder, pigments, insecticide dust and water paints. Other applications mentioned are the mixing of: free flowing liquids, fertilizers, chemicals, and drugs.

Specification data cover standard and corrosion resistant mixers. Capacities per hr range from 2500 to 16,000 lb at motor speeds of 3500 rpm. Mixers require 12 cu ft of space and where required can be mounted one above the other. "High Speed Mixing" is issued by the Entoleter Division, The Safety Car Heating and Lighting Company, Inc., Dept. CP, P.O. Box 904, New Haven 4, Conn. When inquiring specify CP 7255 on handy form, pages 2 and 3.

Clebar

the stop watch of
split second accuracy



#601
Decimal Timer for
Time Study, minute divided into hundredths, side slide starts and stops hands, fly-back from crown, 7 jewels, non-magnetic, 30 minute register. SNAP-BACK ACTION.

There is a Clebar stop watch for every precision timing purpose. Write for new FREE catalog which illustrates more than a score of models.

CLEBAR WATCH AGENCY

521 FIFTH AVENUE, NEW YORK 17

When inquiring check CP 7256 on handy form, pgs. 2-3

REDUCING FITTINGS

are a "Natural"
with
**LENAPE
PRESS
FORMING**



The condensor inlet shown here is one of a large number of similar "standard specialties" produced by Lenape. The fitting shown here reduces from 16" to 12", with 3/4" to 3/8" diminishing wall thickness.

Lenape, seamless welding necks, nozzles, manways, swing-type covers, and other accessories for vessels of all kinds, are available in a complete range of standard and special sizes. Write today for Bulletin 4-61. Your blueprints and specifications will be given our immediate attention.



When inquiring check CP 7257 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

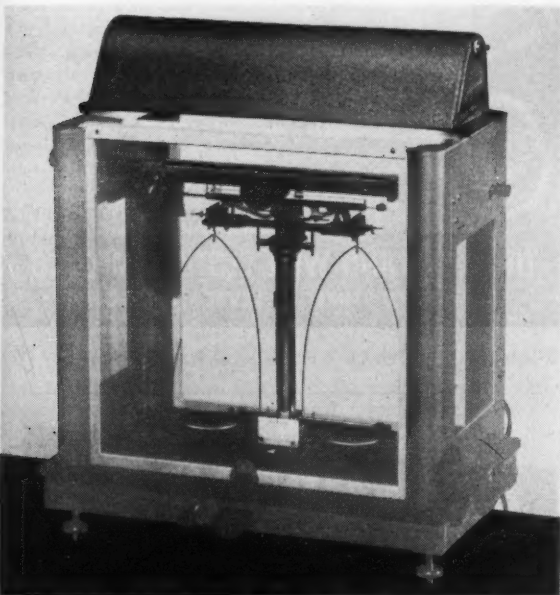
Magnetic interference, vibration eliminated with improved balance light . . .

fluorescent illuminator employs choke coil located six feet away from the balance

Uses: Illumination source for all conventional analytical balances.

Features: Displacement of the location of the choke coil away from the lamp housing to a point near the plug is said to account for the advantages offered by the lamp. These are stated to include: permanent elimination of magnetic interference, vibration and hum. In addition, operation is 35% cooler.

Description: As mentioned, in the Royalton Balance Illuminator, the ballast, which is a special choke coil, is



Shows position of illuminator on balance

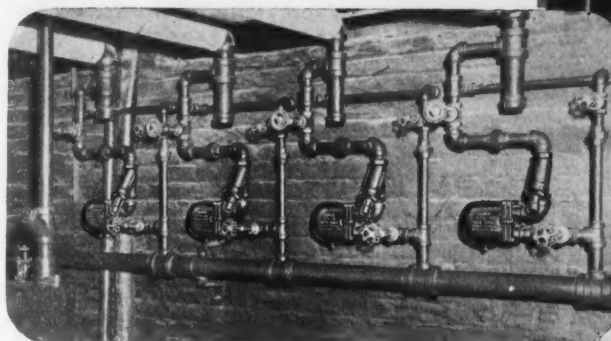
located on the wire near the plug, six feet away from the balance. The housing is fitted with soft rubber feet and sets on top of the balance. It does not require screws, clamps or other fittings to fit any conventional type analytical balance. Electrical components are UL approved for operation on 115 v, 60 cps AC.

Source: Royalton Balance Illuminator is manufactured by Meyer Scientific Supply Co., Inc., Dept. CP, 211-215 N. Eighth St., Brooklyn 11, N. Y. . . or for more information check CP 7258 on handy form, pages 2 and 3.

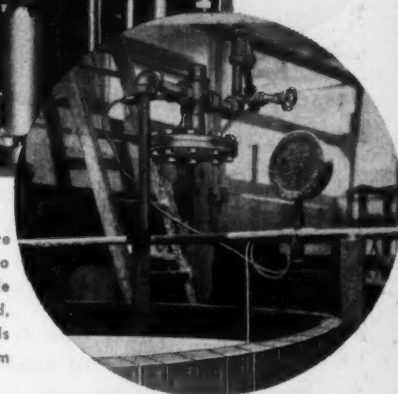
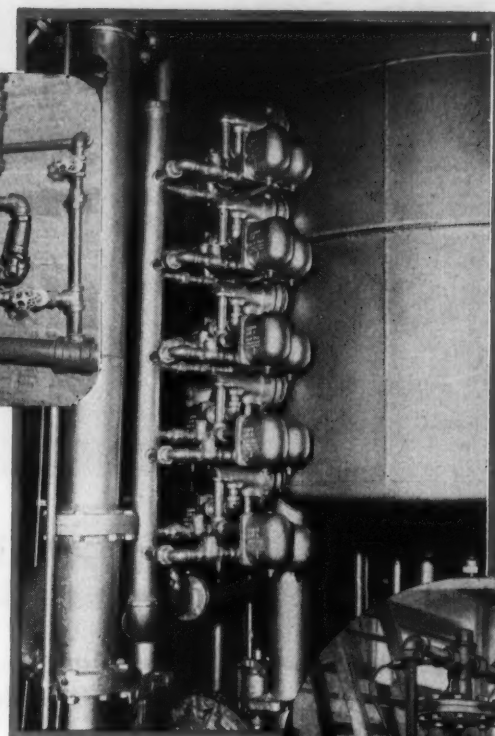
Offers turbine drives for sugar mills

Eleven-page bulletin shows features and discusses turbine drives, both single and multi-stage. Lists applications of drives to cane knives and shredders, juice pumps, crushers and mill rolls, and belt-driven centrifugals. Photographs accompany descriptive material which specifies 10 to 1500 hp and 1000 to 5000 rpm for single stage turbines. Two pages are devoted to cut-away views and analysis of hydraulic governing systems. Publication includes diagrams showing how pressure lubrications system works. Bulletin is issued by General Electric, Dept. CP, Schenectady 5, N. Y. When inquiring specify CP 7259 on handy form, pages 2 and 3.

First we make sure of hot, dry steam at the inlet.



Then we select the best of four distinct types of steam traps to remove all condensate without steam waste.



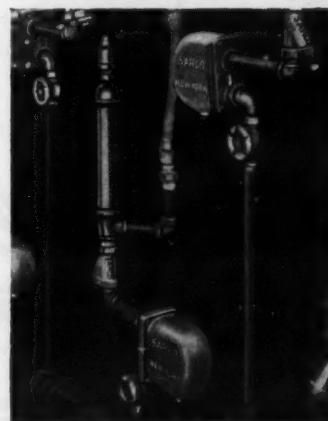
If automatic temperature control is indicated, Sarco can choose from a wide range of self-operated, pilot or electric controls to do the job at minimum cost.

GET YOUR STEAM SYSTEM *Rationalized* WITH SARCO

Operating a steam process with maximum efficiency is more than buying a few steam traps and air vents—it is more than haphazardly applying a few temperature controls.

If it means dollars to you in increased production, improved quality and fewer rejects—it will pay you to let the Sarco man near you make a survey of your needs.

He will come up with definite, practical suggestions of how you can do a better job and save steam besides. Write today—there is no obligation.



The new Sarco draining and venting system for dry cans will save at least 20% warm-up time.

307

SARCO

SAVES STEAM

SARCO COMPANY, INC.

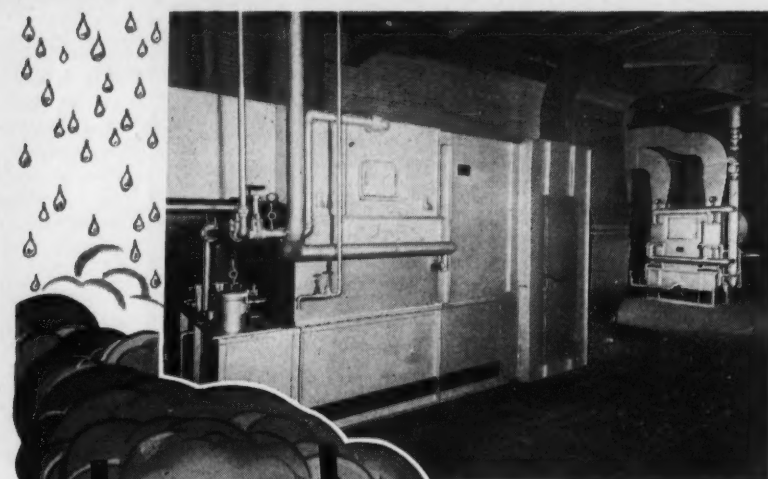
Represented in Principal Cities

Empire State Building, New York 1, N. Y.

SARCO CANADA, LTD., TORONTO 5, ONTARIO

IMPROVES PRODUCT QUALITY AND OUTPUT

When inquiring check CP 7260 on handy form, pgs. 2-3



Humidity "ENGINEERED TO ORDER"

Preserves Materials Subject to Moisture Damage in Warehouses, Ships' Holds, Storage Rooms, Food Terminals, etc.

Are your inventories likely to be damaged by extreme humidity? Then learn how the Kathabar System of Humidity Conditioning permits *long-time warehouse storage safely!*

Today, the Kathabar System is preserving thousands of tons of paper, aircraft "blister" plastic, oceanside stores, merchandise, foodstuffs and raw materials through precise, dependable control of humidity.

Look to your warehouse now — where inventory deterioration can be minimized by . . .

"Humidity Engineering"
with the **Kathabar System**

[KATHABAR DIVISION]

SURFACE COMBUSTION CORPORATION • TOLEDO 1, OHIO

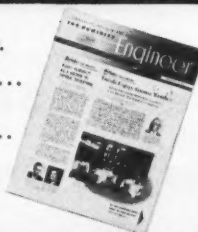
Please add my name so I receive the "Humidity Engineer" regularly.

NAME.....TITLE.....

COMPANY.....

ADDRESS.....

CITY.....ZONE.....STATE.....



When inquiring check CP 7261 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

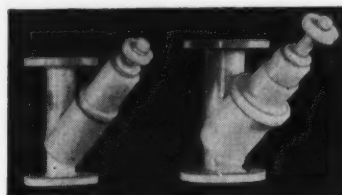
Polyethylene fabrication makes valves resistant to corrosion . . .

1 and 2" bore sizes install quickly in present lines

Uses: For service where requirements call for units that are highly resistant to most corrosive chemicals, including hydrofluoric, sulfuric, nitric and hydrochloric acids at temperatures up to 170°F.

Features: Light weight. Furnished with standard drilled flanges for easy incorporation into established installations, or for use in new assemblies.

Description: Valves are offered in 1 and 2" bore, fabricated throughout



1 and 2" bore polyethylene valves

from polyethylene except for the packing rings which are made of polyethylene-polyiso-butylene mixture. 1" valve weighs 1 lb; 2" valve weighs 3 3/4 pounds.

Source: Agilene valves are built by American Agile Corp., Plastics Div., Dept. CP, 5806 Hough Ave., Cleveland 3, Ohio . . . or for more information check CP 7262 on handy form, pages 2 and 3.

Two-stage operation gets 99.9% of solids out in vapor scrubber . . .

scrubber leaves only 1 ppm solids or less in purified vapor

Uses: Dry vapor scrubber can be used in purifying steam or other vapors. It removes both entrained liquids and solids.

Features: Scrubber leaves only 1 ppm or less of suspended solids in the vapor.

Description: Primary stage separation is accomplished by a rectangular shaped anti-turbulence shield. Shield blocks direct contact of turbulent liquids and sprays with secondary separation chamber behind the shield. The shield consists of a four-wall chamber with corners off-set and overlapping the ends of the side plates. Secondary separation is accomplished by means of either upflow or downflow purifiers within the anti-turbulence shield. Employing centrifugal and centripetal forces, the scrubber



STRAINERS AND FILTERS AVAILABLE IN ALL TYPES AND SIZES

A longer lasting, accurately made filter or strainer increases your profits at every application. The skilled craftsmanship and selected quality materials used in the manufacture of Cleveland Wire Screen is your yardstick for discriminating buying. Custom designed strainer elements are produced in small or large production runs from Chrome Nickel or Copper Alloys. Write for Strainer and Filter Bulletin No. 7.

A CLEVELAND WIRE SCREEN FOR EVERY PURPOSE

THE CLEVELAND WIRE CLOTH & MFG. CO.
3574 E. 78 STREET • CLEVELAND 5, OHIO

When inquiring check CP 7263 on handy form, pgs. 2-3

NEW THREAD COMPOUND
Licks Stud Freezing Even at 1800° F.!

SAFE for all high temperature applications!

SAFE for Stainless and Alloy Steels, too, will not pit or corrode!

IDEAL as a cutting compound to prevent galling of Stainless Steel!

Make a convincing test of Fel-Pro C-5 "Hi-Temp" Thread Compound at our expense. Then you can be sure that C-5 will do everything we say it will do. See how it cuts heater dismantling time—how it cuts costly stud breakage and eliminates pitting. Then you will standardize on C-5 just as have some of the nation's largest refineries, utilities and process industries. Write for FREE Sample and data sheet TODAY!

FREE TEST SAMPLE!
Send for YOURS **TODAY**



FEL-PRO C-5 "HI-TEMP" THREAD COMPOUND

FELT PRODUCTS MFG. CO.
1515 CARROLL AVENUE • CHICAGO 7, ILLINOIS

When inquiring check CP 7264 on handy form, pgs. 2-3

CHEMICAL PROCESSING

- ★ For Direct Heating of Liquids and Vapors
- ★ Indirect Heating Systems Using Circulating Medium

Struthers Wells FIRED HEATERS for the Process Industries

Struthers Wells direct fired heaters are available in sizes from 100,000 to 25,000,000 BTU per hour, for heating gasoline, oils or asphalts, superheating steam or gas, and for indirect heating systems.

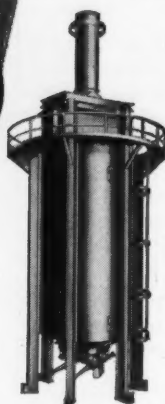
Struthers Wells indirect heating systems give economical—trouble-free operation at temperatures to 750° F., or above.

If your process requires temperatures above those of existing steam supply—if steam is not available, or if the process can be improved by higher temperatures, investigate this simple and economical equipment. • Write on your letterhead for Bulletin B-45, describing our complete line of equipment for high temperature process heating.

STRUTHERS WELLS CORPORATION
Warren, Pa.

PLANTS AT WARREN, PA. • TITUSVILLE, PA.
Offices in Principal Cities

When inquiring check CP 7265 on handy form, pgs. 2-3



Struthers
Wells

Atlantic Flexible Metal Hose Offers

FREEDOM FROM BREAKDOWNS

due to **VIBRATION,
MISALIGNMENT,
EXPANSION,
CONTRACTION.**

—and is better for conveying steam, gases, molten chemicals, oils, refrigerants, tars, asphalt, alkalies, gasoline, light or semi-solids.

Seamless or Interlocking construction in steel, stainless steel, bronze, 1/8" — 36" I.D. with appropriate fittings.

Write for Bulletin 20D.
See our Catalog in
Sweet's File for
Product Designers.

Atlantic Metal Hose Co., Inc.

106 W. 64th St., New York 23, N. Y.

When inquiring check CP 7266 on handy form, pgs. 2-3

OCTOBER, 1951

PROCESSING EQUIPMENT

achieves efficiencies of 99.9 per cent or better.

Due to the non-restrictive design of the tangentially located tuyere vanes, pressure loss through the scrubber is very low. This method of operation allows the elimination of all filter elements and moving parts.

Installation of the dry scrubber is made at the distributing pan or header within the drum. Several units may be employed in one pan to evenly distribute takeoff of vapor if desired. Further information is available from the manufacturer.

Source: Development of The Centrifix Corporation, Dept. CP, 3608 Payne Ave., Cleveland 14, Ohio . . . or for more information check CP 7267 on handy form, pages 2 and 3.

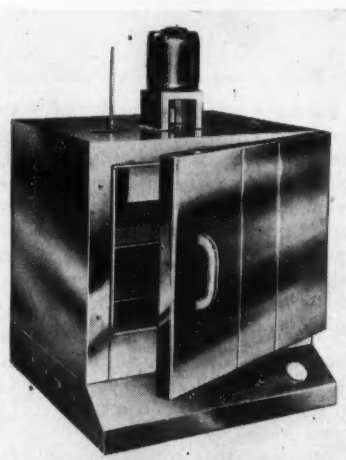
**Oven input selected
Instantly by setting
built-in switch . . .**

unit is built of 302, 18-8 stainless, inside and out

Uses: For laboratory applications in range up to approximately 500°F.

Features: Multi-blade blower wheel and all ball bearing motor provide continuous circulation of air inside heating chamber.

Description: Construction is of type 302, 18-8 stainless steel inside and out. Power selector switch in-



Lab oven has power selector switch

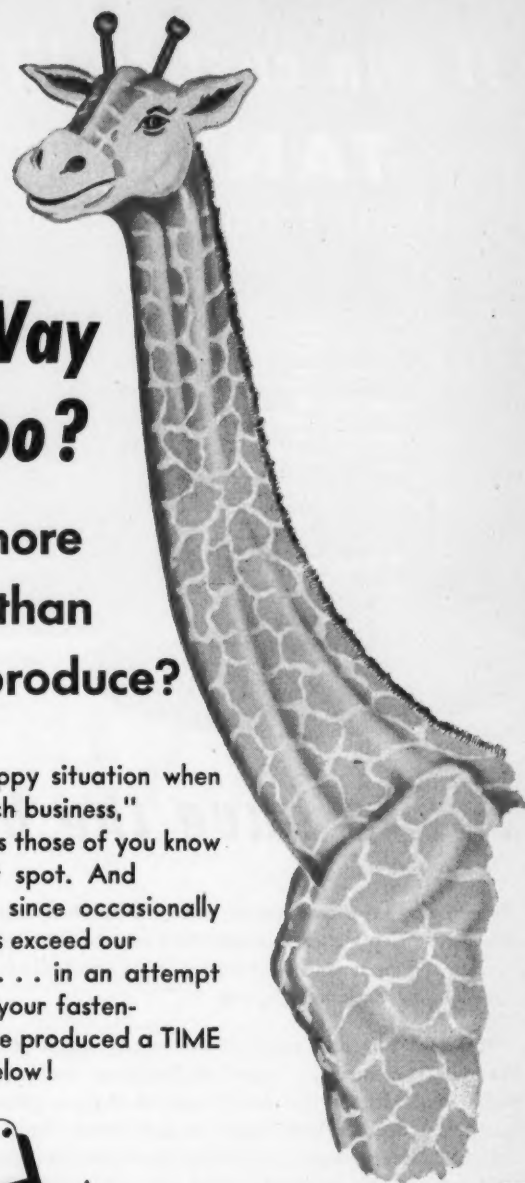
corporated into the unit allows instant selection of low, medium or high current input.

Source: Forced draft lab oven is available from Schaar & Co., Dept. CP, 754 West Lexington St., Chicago 7, Ill. . . . or for more information check CP 7268 on handy form, pages 2 and 3.

Is YOUR Neck Way Out, Too?

... with more
business than
you can produce?

Sounds like a happy situation when you say "too much business," but it sure isn't, as those of you know who are on that spot. And we're on it, too, since occasionally your requirements exceed our production. But . . . in an attempt to help you with your fastening problem, we've produced a TIME SAVER, shown below!



FREE—A-N Stainless Fastening Selector

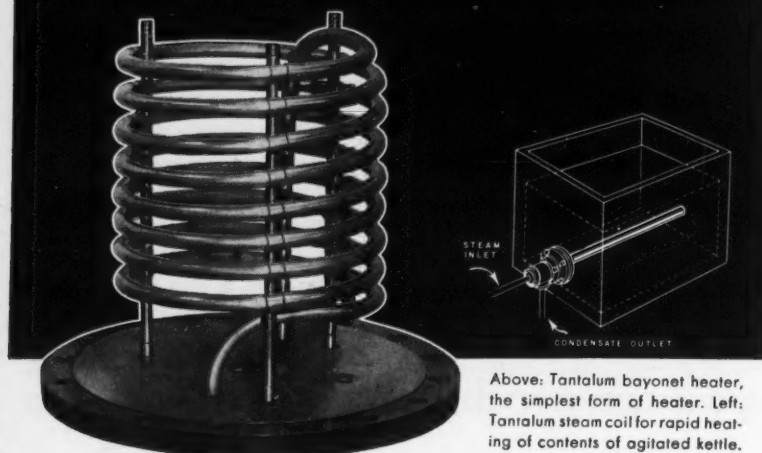
This handy slide-chart instantly identifies A-N Nos. pertaining to stainless steel nuts, screws, bolts, rivets, cotter pins, washers; gives sizes and other data. Write for "Chart 51E" TODAY!

Anti-Corrosive
Metal Products Co., Inc.
Manufacturers of STAINLESS STEEL FASTENINGS
CASTLETON-ON-HUDSON, NEW YORK

When inquiring check CP 7269 on handy form, pgs. 2-3

It can cost so little....

TANTALUM Heat Transfer Equipment



Above: Tantalum bayonet heater, the simplest form of heater. Left: Tantalum steam coil for rapid heating of contents of agitated kettle.

.....to have the best!

Case history after case history testify to the fact that Tantalum heat exchangers not only effect savings which pay for the equipment in very short periods of time but, in the long run, give economies in maintenance which appear as big black profit figures.

How is all this made possible? By the very nature of the metal from which the heaters are made... tantalum. Tantalum combines the physical properties of steel with the chemical properties of glass, giving it three important qualities. 1. Speed in heat transfer. 2. Acid proof—for most acid solutions and corrosive gases or vapors. 3. Freedom from thermal shock. The results... the heaters heat faster, saving time, fuel and space—have a long life expectancy—give freedom from product contamination due to corroded equipment. Single bayonet-type Fansteel Tantalum Heaters are standard. Multiple bayonet and shell and tube type heat exchangers are designed and built to specifications.

USE TANTALUM WITH ECONOMY for most acid solutions, corrosive gases or vapors; not with HF, alkalis or substances containing free SO₂.

Write for informative bulletins on Tantalum Acid-Proof Chemical Plant Equipment.

Fansteel engineers are at your service for consultation on any corrosion or heat transfer problem where the metal tantalum can be economically used to your best advantage. Fansteel Metallurgical Corporation, North Chicago, Illinois, U.S.A.



Fansteel

12401-C

Acid Proof
TANTALUM
CHEMICAL PLANT EQUIPMENT

When inquiring check CP 7270 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

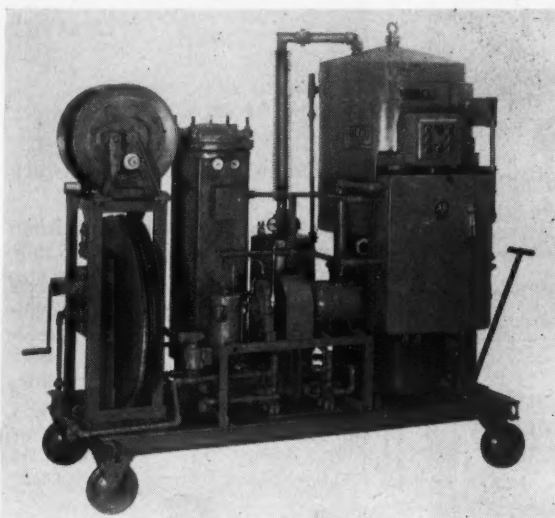
Purification of hydraulic oils at regular intervals simplified by mobile reclaimer...

unit built to approved standards, equipped with oil hose, power cable reels, safety valves

Uses: For periodic purification of hydraulic oil used in machine tools, molding and extrusion presses, baling presses and other hydraulic operated equipment.

Features: Mounted on two swivel and two fixed 8" rubber-tired ball bearing casters for easy, rapid mobility. Contributes to longer life for pumps, valves and other parts, and to greater operating efficiency. Saves oil. Heat exchanger with 65% regenerative capacity minimizes power consumption and insures return of cool oil to hydraulic system.

Description: Unit is fabricated in accordance with JIC electric and hydraulic standards. By means of "dirty oil" hose, oil is withdrawn from sump and pumped through



Removes suspended solids, water, etc., from hydraulic oils

a filter for solids removal and a vaporizer for moisture removal. Oil is then returned through a clean hose to the sump. Filter is fitted with cartridges containing water resistant fuller's earth or fine fiber cellulose. Former is recommended for straight mineral or synthetic oil and the latter for inhibited oils. Both filter and vaporizer are equipped with thermostatically controlled electric heaters. Oil pumps are protected with relief valves. Crank-operated reels facilitate use of oil hose and power cable. Suitable valves, gauges and sight glasses simplify operation.

Source: Model 50-X oil reclaimer is built by The Hilliard Corp., Dept. CP, 207 West 4th St., Elmira, N. Y. . . or for more information check CP 7271 on handy form, pages 2 and 3.

Pilot plant grinder designed to duplicate results of standard unit...

can be dismantled in very few minutes for easy and rapid cleaning

Uses: Smallest of a line of grinders and pulverizers is designed for small production, pilot plant, or lab work.

Features: Duplication of construction with allowance for smaller size makes this unit operate much like its larger

**THIS
Cambridge
BELT**

HELPS CUT PRODUCTION COSTS

... in drying, baking, filtering or other chemical processes. **Balanced Weave** is low in initial cost, combines high tensile strength, and strain resistance with straight belt travel. Mesh opening can be controlled for free drainage or for retention of powdered materials.

Regardless of your specific process, there is a Cambridge woven wire conveyor belt to combine movement with processing of parts or materials.

Woven from any metal or alloy to the mesh or weave that best suits your operating conditions... heat, cold or corrosive agents... Cambridge belts are constructed to rigid specifications based on our experience in your industry. And any Cambridge belt can be equipped with special drive connections, retaining selvages, cleats, or other attachments for your particular process.

FREE CATALOG. Basic reference manual on conveyor design, belt construction and metallurgy. Write today or call your nearest Cambridge office. See "Beltting—Mechanical" in your Classified Telephone Directory.



WIRE
CLOTH



METAL
CONVEYOR
BELTS



SPECIAL
METAL
FABRICATIONS

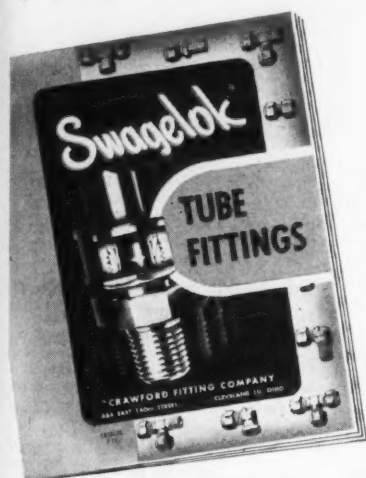
**The Cambridge
Wire Cloth Co.**
Dept. F, Cambridge 10, Md.

OFFICES IN PRINCIPAL INDUSTRIAL CITIES

When inquiring check CP 7272 on handy form, pgs. 2-3

CHEMICAL PROCESSING

IT'S FREE
IT'S NEW!



Swagelok^{*} TUBE FITTINGS CATALOG

Every instrument man, process piping man, designer, engineer, and purchasing agent should have this new Swagelok Tube Fittings Catalog. It gives you at a glance, detailed, illustrated data on the complete line of Swagelok tube fittings in brass, aluminum, steel, stainless steel, and Monel. It's your complete guide to economical, torque-free, leakproof joints in all instrumentation and process piping lines.

FREE— Send for Swagelok Catalog B-151 today. Address Dept. CC

*Patented

CRAWFORD FITTING CO.
884 E. 140th Street, Cleveland 10, Ohio

SWAGelok FITTINGS AVAILABLE IN: BRASS,
ALUMINUM, STEEL, STAINLESS STEEL, MONEL



COME TO YOU COMPLETELY ASSEMBLED,
FINGER TIGHT

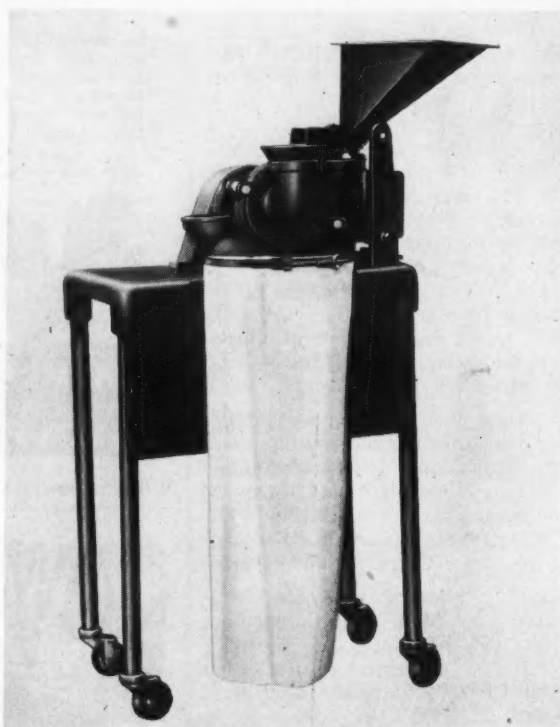
When inquiring check CP 7273
on handy form, pgs. 2-3

PROCESSING EQUIPMENT

counterparts. It delivers the same fineness of grind and same type of product as they do.

Description: Grinding chamber presents smooth faced, machined surfaces for easy cleaning. Grinding rotor uses Stellite tipped wearing edges, and is reversible. Normally the unit is furnished in grey iron or steel, but bronze, aluminum, stainless steel or other materials can be used.

Although capacity varies with fineness desired and the properties of the material, a typical example of performance of this small model is granulated sugar reduction to 99% through 100 mesh. This was done at a rate of 75 to 100



Mobile pulverizer handles up to 100 lb/hr

lb/hr. This model pulverizer is normally powered by a $\frac{3}{4}$ or 1 hp motor. No installation is required as frame is mounted on casters, and the extension cord can be plugged into any outlet. To aid in feeding material from the hopper, an electrical vibrator is built in. This helps prevent bridging of the material.

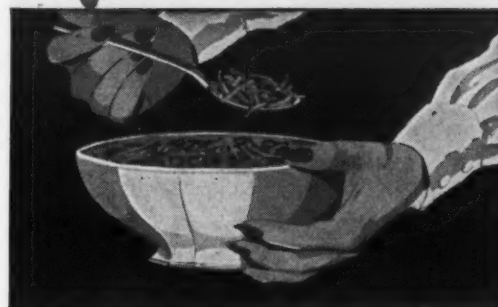
Source: Product of Pulva Corporation, Dept. CP, 550 High St., Perth Amboy, N. J. . . . or for more information check CP 7274 on handy form, pages 2 and 3.

Solenoid valve provides safe oil flow shut-off

Rotating cam feature makes for positive closing action of solenoid valve specified in two-page sheet. Reports dependable shut-off of oil flow, especially of heavy #5 and 6 grades, and against pressures up to 300 psig. Specifications list availability for $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$ and 1" pipe sizes and following power sources: 110, 220, 440 or 550 v and 60 cps AC.

Another application is to provide a shut-off facility from a remote control push button or switch. Catalog 710 is issued by Hauck Manufacturing Co., Dept. CP, 124-136 Tenth St., Brooklyn 15, N. Y. When inquiring specify CP 7275 on handy form, pages 2 and 3.

from noodles



to nylon!

process men value

DOWTHERM

The MODERN heat transfer medium

In hundreds of industries where processing operations require constant and accurate temperature—DOWTHERM® has proved invaluable in providing and controlling the required heat at low pressure.

Process men know that uncontrolled heat can mean spoiled batches, equipment replacement . . . and lowered profits. Not so with DOWTHERM! This modern heat transfer medium prevents hot spots, saves time, prolongs the life of materials and equipment—and brings to high-temperature processing operations a hitherto unknown safety.

If your operations require precise, low-pressure heating in the 300°—750°F. range, write to Dow for complete information about DOWTHERM.

THE DOW CHEMICAL COMPANY
MIDLAND, MICHIGAN



"Tell Me More About Dowtherm"

THE DOW CHEMICAL COMPANY
DEPT. DO-21
MIDLAND, MICH.

Name _____ Title _____

Company _____

Address _____

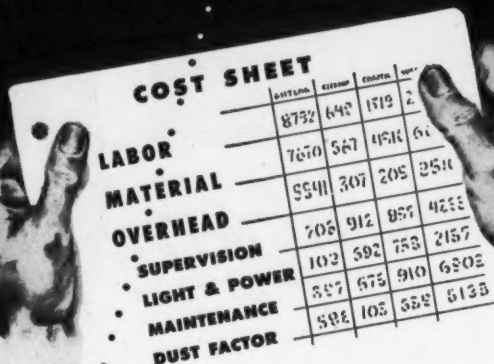
City _____ State _____



When inquiring check 7276 on handy form, pgs. 2-3



How costly is YOUR D* FACTOR?



	LABOR	MATERIAL	OVERHEAD	SUPERVISION	LIGHT & POWER	MAINTENANCE	DUST FACTOR
8732	642	1719	2				
7670	567	4514	61				
5541	307	205	2511				
706	912	857	4211				
102	592	753	2157				
517	675	910	6302				
581	105	552	5133				

D* means DUST!

—and DUST in a modern industrial plant means operating losses. Uncontrolled DUST accelerates high-precision machine wear, contaminates products, multiplies maintenance and cleaning costs, and creates unhealthy, unattractive working conditions.

DUST can be explosive, hazardous to health, valuable, or it can be worthless and a nuisance. Regardless of its characteristics, uncontrolled DUST always results in higher operating costs and reduced profits.

If your operations indicate a need for dust control, our 35 years' experience exclusively in this field can prove valuable to you. DRACCO engineers can eliminate your D factor by furnishing a high efficiency DRACCO Dust Control system accurately designed to meet your specific needs.

It will pay you to analyze your D factor and to write for complete data on a DRACCO installation as applied to your problem.

DRACCO CORPORATION
4060 E. 116th St., Cleveland 5, Ohio or
415 Lexington Avenue, New York 17, N. Y.



AGENTS IN PRINCIPAL CITIES

DRACCO *Performance Proved*
DUST CONTROL EQUIPMENT
PNEUMATIC CONVEYORS • METAL FABRICATION

When inquiring check CP 7277 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

**Tests current devices,
producing controlled,
variable current . . .**

stepless adjustment of current to
500 amp is metered to 1%

Uses: For testing and calibrating
current-actuated devices such as over-
load relays, circuit breakers, current
transformers, instruments, and relays.

Features: AC to 500 amp is metered
to within 1%.

Description: Several testing and
calibrating models are available. Me-
tered output is available with Model
1002 Multi-Amp. The heavy gauge
sheet steel cabinet is 10-1/2 x 10-1/2 x
19" wide, and carries terminals, con-
trols and a 4", 4-range ammeter (25,
50, 250, and 500 amp) which is
accurate to 1%. Short duration cur-
rent up to 1200 amp can be drawn
with safety. Unit is powered by
110/220 v 60 cps and weighs 60 lb.
Models 1003 and 1004 are similar to
1002 except that they do not incorpo-
rate the meter. Model 1004 is de-
signed for 25 cps AC.

A smaller unit, Model 1001, is de-
signed as Mini-Amp and finds its service
in the fractional horsepower range.
Stand-up cabinet is 12 x 7-3/4 x 7"
and weighs 15 lb. Supplied by a 110
v 60 cps line, Mini-Amp delivers up
to 20 amp. Output is not metered.

Source: Current units are manu-
factured by Multi-Amp Corporation,
Dept. CP, 121 Cross St., Harrison,
N. J. . . . or for more information
check CP 7278 on handy form, pages
2 and 3.

Wall chart details welding alloys

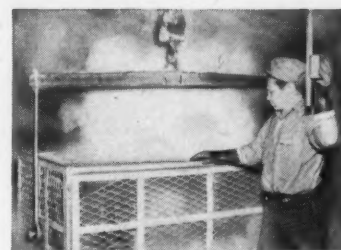
Measuring 10 x 14", the chart con-
tains detailed specifications on approx-
imately 200 metal-joining alloys in-
cluding bonding temperatures, tensile
strengths and recommended uses. Major
listings show proper welding
alloys for use with cast iron, steel,
copper, brass, bronze, nickel and
nickel alloy, magnesium alloys and
zinc die castings as well as for hard
overlaying, cutting, chamfering, goug-
ing and joint preparation of all metals
available.

Further subdivision of the information
covers the use of the alloys with vari-
ous heating methods — torch, arc and
inert gas-shielded arc welding. "Weld-
ing Alloy Chart" is issued by Dept.
"P", Eutectic Welding Alloys Corp.,
Dept. CP, 172nd Street and Northern
Blvd., Flushing, N. Y. When inquir-
ing specify CP 7279 on handy form,
pages 2 and 3.

78% reduction in hand injuries plus 6c per man-hour saved

CASE NO. 207

Problem: High per-
centage of hand in-
juries from cuts,
acid and heat burns
and infections, in
plant employing over
1000 men to shear,
form and dip-coat
sheet steel products.
Canvas and neo-
prene gloves quickly
cut or tore, replace-
ment costing over
10c per man-hour on
many operations.



Solution: Change-over to heavy NEOX (reinforced
neoprene) coated gloves for work with hot metal and
acid solutions, and gloves with natural rubber coated
palms and thumbs for handling sharp-edged dry sheets.
Reduced hand injuries 78%. Gloves also wore 3 to 5
times longer, averaging saving of 6c per man hour.

Plastic, Natural Rubber and
NEOX (Reinforced Neoprene)



Edmont
COATED FABRIC
GLOVES

Safe hands cut costs 5 ways

- 1: Fewer lost time accidents
- 2: Faster, surer work handling
- 3: Less spoilage
- 4: Improved job attitude
- 5: 40% to 70% savings in
usual glove costs to com-
pany or employees.

Send description of your problem.
We will supply free test samples.

Edmont Manufacturing Company
1204 Walnut St., Coshocton, Ohio
World's largest maker of coated
industrial gloves

When inquiring check CP 7280 on handy form, pgs. 2-3

NOW ONE UNIVERSAL JOINT For HIGH-load, HIGH-static torque Drives



Highest grade, heat-treated alloy steel for greater
strength.

Ground to infinite degree of accuracy. No binding,
backlash or inlay of pins. Concentricity guaranteed
within .001. Exceed Armed Forces rigid requirements.
13 SIZES — Bore 1/4" to 2".
Overall length 2" to 10 1/2".

Write for fully descriptive literature.

LOVEJOY FLEXIBLE COUPLING CO.

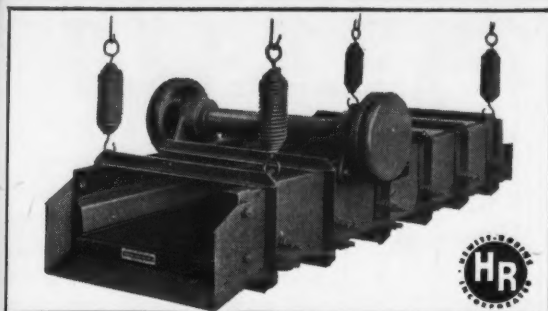
5072 W. Lake St.

Chicago 44, Illinois

Mfrs. of Lovejoy Flexible Couplings & Variable Speed Controls

When inquiring check CP 7281 on handy form, pgs. 2-3

CHEMICAL PROCESSING



This is a **HYDREX**® SCREEN

What It Does: Separates solids from liquids, liquids from solids; removes foreign particles from wanted substances, coarser materials from fine slurry—10 mesh down to 150 mesh.

Substances Handled: Ceramic slip, instant coffee, sweet potato starch, candied citrus rinds, synthetic rubber, wet sand . . . all kinds of substances processed in chemical, metallurgical, food and other plants.

Capacities: From 3 to 20 gallons per minute per square foot of screening surface, depending on the mesh of cloth used.

Screen Cloth Material: Stainless steel for nearly all types of service. Entire screen (except unexposed vibrator parts) is stainless steel where service demands protection against contamination, corrosion or other operating conditions.

Types Available: Floor mounted or suspended. Both types employ full-floating, two bearing principle, providing flexible stroke. Operate horizontally or slightly uphill.

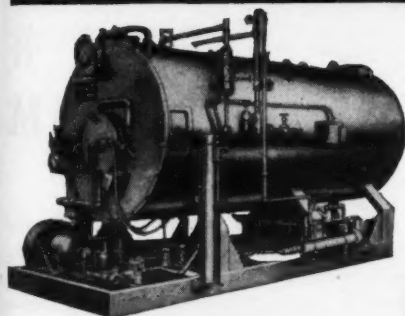
Tell us your screening problem. We'll recommend a solution. Write to Robins Conveyors Division, Hewitt-Robins Incorporated, 270 Passaic Avenue, Passaic, N. J.

Hewitt-Robins is participating in the management and financing of Kentucky Synthetic Rubber Corporation.

HEWITT-ROBINS
HYDREX SCREENS

When inquiring check CP 7282 on handy form, pgs. 2-3

MODERNIZE with the **AMESTEAM** GENERATOR



• COMPLETE • COMPACT
• ACCESSIBLE • EFFICIENT
• AUTOMATIC

10 to 500 h. p. —
15 to 200 lbs.

WRITE FOR
YOUR COPY

AMES IRON WORKS

BOX 610 OSWEGO, N. Y.

Builders of Better Boilers since 1848
Manufactured under
License in Canada by VOLCANO, Ltd., Montreal, P. Q.

When inquiring check CP 7283 on handy form, pgs. 2-3

OCTOBER, 1951

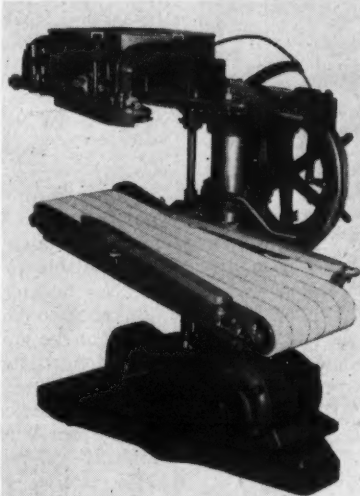
PROCESSING EQUIPMENT

**Wire ring around bag neck
applied automatically to
provide sift-tight seal . . .**

5 models handle bags in sizes of 2-5 lb at speeds up to 2000 per hr; use 12, 14 or 15 gauge metal wire

Uses: For closing open-mouth paper bags from 2 to 100 lb capacity by sealing them with 12, 14 or 15-gauge metal wire. Chemical products, insulation, fertilizer, charcoal are typical of materials that are provided secure bag closure.

Features: No machine attendants are required as sealing operation is completely automatic. Seal is so tight that even fine powdered materials will not seep through. Closing speeds ranging from 1100 to 1700 bags per hour are easily maintained, depending on bag size. Machine may be moved quickly to any point where it is needed, and is easily added to any existing installations.



Seals paper bags with metal ring

Description:

Each of five models has specific capacity range: 2-5 lb; 10-25 lb; double and triple 25 lb bag; 25-49 lb; 50-100 lb. Machines make their own closure rings from a large spool of special wire located at back of unit. Conveyor may be raised vertically from a point 19" above floor to a maximum height of 30".

It is 41" long and 9" wide. Built-in 1/2 or 1 hp motor drive is supplied according to requirements. (This is optional.)

An arrangement of chain drives compresses the neck of the bag, then seals it. Bronze bearings are provided at points of wear.

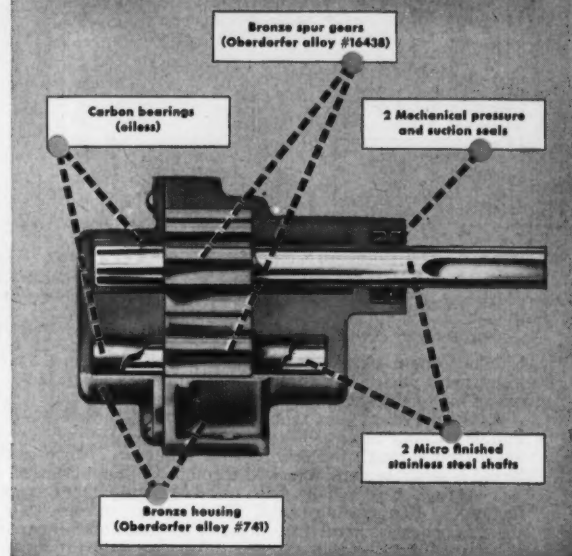
Source: "Wire-ring" bag closer are built by Hamer Machine Co., Dept. CP, Minneapolis, Minn. . . or for more information check CP 7284 on handy form, pages 2 and 3.

Magnetic separators discussed along with lifting magnets

To protect machinery, purify products, concentrate ores and minerals, reclaim iron and speed material handling are some applications of magnetic separating equipment described here. Specifications accompany photographs of entire line of magnetic separators and lifting magnet outlined in this 12-page catalog. The publication tells which magnets to use to remove iron from wet or dry materials carried on conveyor belts, chutes, ducts, etc.

Units for magnetic concentration and purification, heavy media recovery and materials handling are detailed. Catalog serves as a handy guide to the selection of a magnet from the application standpoint. Catalog C-5000-B is issued by Dings Magnetic Separator Co., Dept. CP, 4740 W. Electric Ave., Milwaukee 46, Wis. When inquiring specify CP 7285 on handy form, pages 2 and 3.

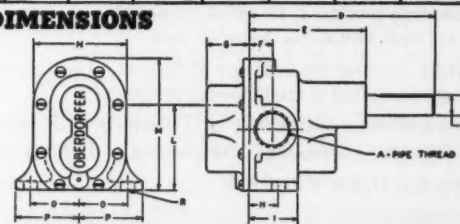
Series I **BRONZE** **OBERDORFER INTERNATIONAL** **ROTARY GEAR PUMPS**



These precision built pumps have been specifically designed for long and economical service, and to reduce liquid transfer costs in a vast variety of industrial applications. Their five major points of superiority incorporate all the engineering and production knowledge amassed in building millions of bronze pumps over a period of more than 50 years.

Capacity Tables		Gallons per hour—1,725 R.P.M.—lbs. sq. in.						
Size	No.	2 lbs.	20 lbs.	40 lbs.	60 lbs.	80 lbs.	100 lbs.	Price
1 1/2	1000	126	115	105	98	93	90	\$14.25
2	2000	245	225	215	205	195	190	15.75
3	3000	445	425	405	390	380	370	20.00
4	4000	640	610	580	550	530	510	22.25
7	7000	1185	1160	1140	1120	1100	1085	28.50
9	9000	1400	1375	1350	1325	1300	1280	29.75

DIMENSIONS



Size	A	B	D	E	F	G	H	I	L	M	N	O	P	R
1 1/2	1/4	1/2	3 1/16	2 3/8	3/8	1 1/8	3/8	1 1/8	1 7/8	2 3/8	1 1/8	3/8	1 1/4	3/8
2	3/8	5/8	3 1/8	2 3/4	1 1/8	1 3/8	1 1/8	2 3/8	2 3/8	3 3/8	2 3/8	1 1/8	1 1/4	3/8
3	1/2	3/4	4 1/16	3	1 1/2	1 3/4	1 3/8	2 3/8	4	2 3/8	1 1/8	1 1/8	1 1/2	3/8
4	5/8	3/4	5 1/8	3 3/8	1 3/8	1 3/8	1 3/8	2 3/8	4	2 3/8	1 1/8	1 1/8	1 1/2	3/8
7	3/4	3/4	5 3/8	3 3/8	1 3/8	1 3/8	1 3/8	3 3/8	5 1/8	3 3/8	1 1/8	1 1/8	1 1/2	3/8
9	1	3/4	5 3/8	3 3/8	1 3/8	1 3/8	1 3/8	3 3/8	5 1/8	3 3/8	1 1/8	1 1/8	1 1/2	3/8

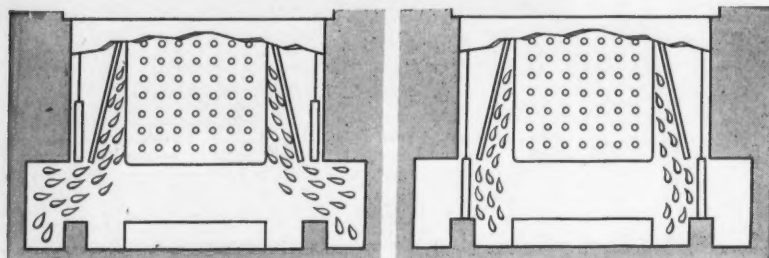
CP-5110

INDUSTRIAL PUMP DIVISION
Oberdorfer Foundries, Inc.
Syracuse, N. Y.

When inquiring check CP 7286 on handy form, pgs. 2-3

LOOK!

2 successive liquids separated without mixing



CURB OPEN to permit first liquid to be separated and evacuated from machine.

CURB SHUT, second liquid is separated and removed through lower outlet without mixing with first liquid.

Industry benefits from broad use of centrifuging . . .

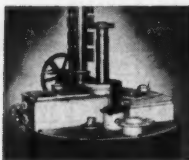
thanks to new AT&M developments. The centrifugal above — a profitable investment wherever two or more liquids are separated in a cycle — is but one of many outstanding AT&M centrifugals that save time, space, costs.

As the drawings above show, this curb is designed to remove two successive liquids without mixing. With the curb open, the first liquid is separated and evacuated through the curb outlet. The curb is then closed and the second liquid is separated and removed through a different outlet.

You, too, can benefit with AT&M equipment. Does away, in many instances, with settling tanks, filter presses, squeeze rolls, vacuum presses. Used in processes involving chemical preparations — explosives — nitrating — acid wringing — ammonium sulphate — food products — soap — drugs, medicines, cosmetics — oils and greases — paints, varnishes — ceramics, brick, clay — fertilizers — nitrates — sludges — textiles — carbonizing (textiles) — plastic bases.

Find out now how AT&M centrifugals can help you. Send for free booklet today.

P.S. PROVE TO YOURSELF how centrifuging can benefit you. Send us a sample of your material for centrifuging to your specifications or rent an AT&M laboratory centrifugal for your own tests at a nominal fee.



FUME-PROOF. No gases can escape from this specially designed AT&M centrifugal. Its fume-tight hood — originally developed by AT&M engineers to solve a special problem — is now used to advantage by many firms processing volatile liquids.



FREE
ILLUSTRATED BOOKLET

AMERICAN TOOL & MACHINE COMPANY
1412 Hyde Park Avenue, Boston 36, Mass.

Please send me my free copy of the new AT&M booklet "Centrifugal Force." I am interested in the following processes:

Separation ☐ Extraction ☐ Dehydration ☐ Clarification ☐ Coating ☐
Filtration ☐ Draining ☐ Thickening ☐ Impregnation ☐ Sedimentation ☐

ANY OTHER PROCESS

Name Title

Company

Street

City Zone State

SAVE TIME,
SPACE AND
COSTS WITH

A.T. and M.
CENTRIFUGING

When inquiring check CP 7287 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Joint's "O" ring seal resists gasoline, temps from -40 to 225° F . . .

made in range of 60 sizes, rings seal rotary liquid joints

Uses: Particularly applicable to gasoline and oil tank car or truck loading and unloading lines.

Features: Simplicity in providing for 360° rotation around the axis of the joint, with a long bearing surface to support the weight of normal piping. When used in pairs, connected by 90° ell, they provide for up-and-down and side-to-side action such as may be desired for loading or unloading lines. Easy arrangement for counter-balancing of supported piping is also provided.

Description: Size range is from 3/8 to 3" for threaded connections and from 4 to 12" with flanged connections. Some 60 different models are available to meet users' requirements. Sealing is by means of an "O" ring confined in a recess in the sleeve of the joint. Special "O" rings are provided for gasoline and similar liquids. These rings resist softening effects and deterioration at any pressures from 0 to 100 psi, and to as high as 500 psi in the smaller sizes. This material is also suitable for temperatures from -40 to 225°F. In all the larger sizes, standard Alemite fittings are provided for lubrication of the joints. All parts are readily accessible for inspection.

Source: Series 5001, 5011 and 5020 joints are available from Dept. J-2, Barco Mfg. Co., Dept. CP, 1801 W. Winnemac Ave., Chicago 40, Ill. . . . or for more information check CP 7288 on handy form, pages 2 and 3.

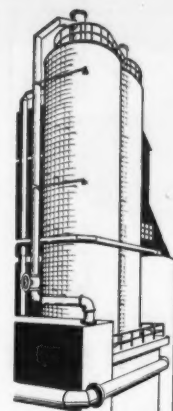
Fast, controlled braking provided for variable drive motors . . .

for inching or jogging; shockless operation; noiseless

Uses: For fast controlled braking of variable-drive motors. Especially suitable for inching or jogging. Offers shockless operation without noise, and produces a constantly increasing torque during stopping.

Features: Contains few parts and has a mechanical movement of only 1/16". Unlike the solenoid-type brake, its frictional force is controlled by the magnetic action of the brake. Adjusted with accuracy, the braking torque, once set, is permanent. This is an important aid in applications demanding accurate regulation.

Description: Brake (Warner-type



formula for profit

MARIETTA DESIGNED AND BUILT
STORAGE SYSTEM

Install a Marietta storage system. Fill with chemicals that need air-tight, moisture-proof storage. Add the advantages of wind and fire proof tanks constructed of Air-Cell concrete staves for strength and BONE DRY storage. Subtract high insurance rates, less spoilage and waste . . . thanks to safe, dependable Marietta tanks.

the result? A modern storage system that eliminates maintenance, provides permanent, year 'round protection for all your bulk materials requiring storage, lowers handling costs.

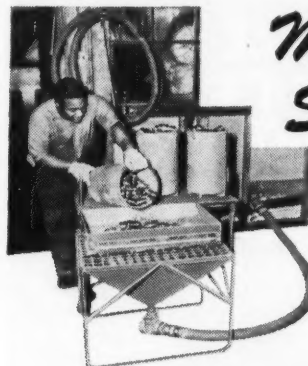
To learn how you can have a complete system designed and erected to meet your needs, write or wire our nearest office.

THE MARIETTA CONCRETE Corp.

MARIETTA, OHIO

Branch Offices: Race Road and Pulaski Highway, Baltimore, Md.
Box 1575, Charlotte, N. C.

When inquiring, check CP 7289 on handy form, pgs. 2-3



Mechanical Separation
WITH
SPENCER VACUUM

Spencer Vacuum picks up, conveys, separates and deposits all kinds of materials. With these functions, all provided by one machine, engineers are designing ingenious, automatic vacuum applications. A simple form of separation is shown above. Cans of heat treated metal parts are dumped over a vacuum screen. The bone ash is taken to a Spencer Separator and is ready to use again. In a chemical plant, Spencer elevates powders to the roof—and dropped from floor to floor over vibrating screens.

Spencer Industrial Vacuum equipment is made in sizes from 1 1/2 to 100 HP. Ask for Bulletin No. 125D.

THE SPENCER TURBINE COMPANY • HARTFORD 6, CONNECTICUT

SPENCER
HARTFORD

439-N

When inquiring check CP 7290 on handy form, pgs. 2-3

CHEMICAL PROCESSING

FILTER MEDIA

for Chemical Processing

FILTER PAPER

LABORATORY . . . INDUSTRIAL . . . Made from finest materials for accuracy and dependability . . . light and heavy weights . . . slow and fast filtering speeds . . . large stock maintained . . . cut to any size and pattern . . . samples furnished for experimental purposes.

FILTER CLOTH

Cottons, wools, felt, glass, nylon, silk, vinyon, saran, metal mesh and many other synthetic materials cut and sewn in all shapes and sizes . . . many weaves, weights and finishes.

ASBESTOS PADS

Quality filtering pads furnished in a range of grades varying in porosity and filtering characteristics. Sizes and shapes for all needs.

OTHER "FILPACO" PRODUCTS: Filters, stainless steel storage and mixing tanks, fillers, pumps, conveyors, fittings, and filter aids.

WRITE TODAY for further information and samples!



FILPACO INDUSTRIES
The FILTER PAPER CO.

2432 S. Michigan Ave. Chicago 16, Ill.

When inquiring check CP 7291 on handy form, pgs. 2-3

CHARLOTTE COLLOID MILLS

Control Product · Improve Production

• CLAY • PHARMACEUTICALS •
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Write for Descriptive Literature

CHEMICOLLOID LABS INC.

Manufacturer and Distributor

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DISTRICT OFFICES

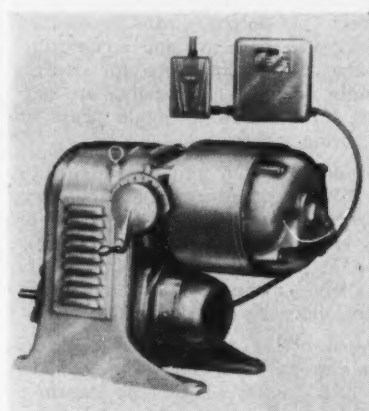
Baltimore • Chicago • Detroit • Los Angeles • Atlanta • New Orleans

When inquiring check CP 7292 on handy form, pgs. 2-3

OCTOBER, 1951

PROCESSING EQUIPMENT

ICB) is mounted directly on the variable speed shaft, eliminating transmission of the braking action through the belt. For installations requiring diversified braking torque, adjustment is



Brake mounts on variable drive shaft

easily made through a knob-controlled rheostat. Adjustable to both the variable drives and variable drive synchro gears produced by the maker, brake is DC actuated with low power requirements — maximum is from 25 to 35 watts.

Power conversion units are used where AC voltage is supplied.

Source: U. S. Electrical Motors, Inc., Dept. CP, 200 E. Slauson Ave., Los Angeles 54, Calif. . . . or for more information check CP 7293 on handy form, pages 2 and 3.

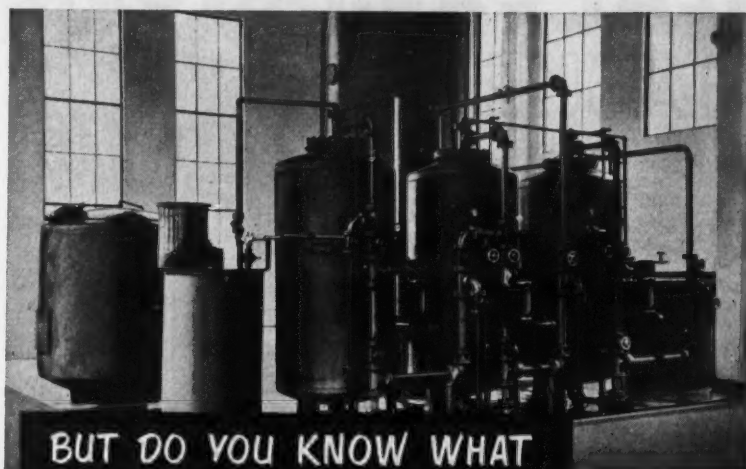
Six types of packing are shown

Eight-page, two-color bulletin illustrates and specifies six types of duck and rubber packings. They are: low pressure, cross expansion, hydraulic, hollow core, round rubber core, and diagonal expansion. "Duck and Rubber Packings" is issued by Packing Div., Raybestos-Manhattan, Inc., Dept. specify CP 7294 on handy form, pages 2 and 3.

Steam generator units from 15 to 500 hp

Bulletin gives information on company's units for steam or hot water use. High or low pressure units from 15 to 500 hp are described. Details are given on special burner design and the units' ability to be changed from oil to gas firing in a matter of minutes. Bulletin 1218 is issued by Orr & Sembover Inc., Dept. CP, Reading, Pa. When inquiring specify CP 7295 on handy form, pages 2 & 3.

Sure we manufacture heavy process equipment . . .



Dorrco D-I System installed at a Norwegian Chemical Plant.

BUT DO YOU KNOW WHAT WE CAN DO FOR YOU IN ION-EXCHANGE?

for instance, do you know that . . .

DORR can place at your disposal any portion of a complete service for handling ion-exchange problems . . . from problem analysis to initial plant operation.



DORR can supply equipment for the treatment of water, and chemical or sugar bearing solutions of all kinds; for the extraction and concentration of some of the valuable metals from dilute solutions . . . in any capacity you require.

DORR will work with you on any phase of your ion-exchange program . . . whether it involves established principles or a new and confidential process.

If you are currently exploring the possibilities of ion-exchange for new processes or those already established we believe we can help you. And you'll find our ion-exchange facilities backed by solid chemical engineering knowledge.

Bulletin #4081 lists the high-spots of Dorrco D-I* Systems. Write to Ion-Exchange Sales, The Dorr Company, Barry Place, Stamford, Conn.



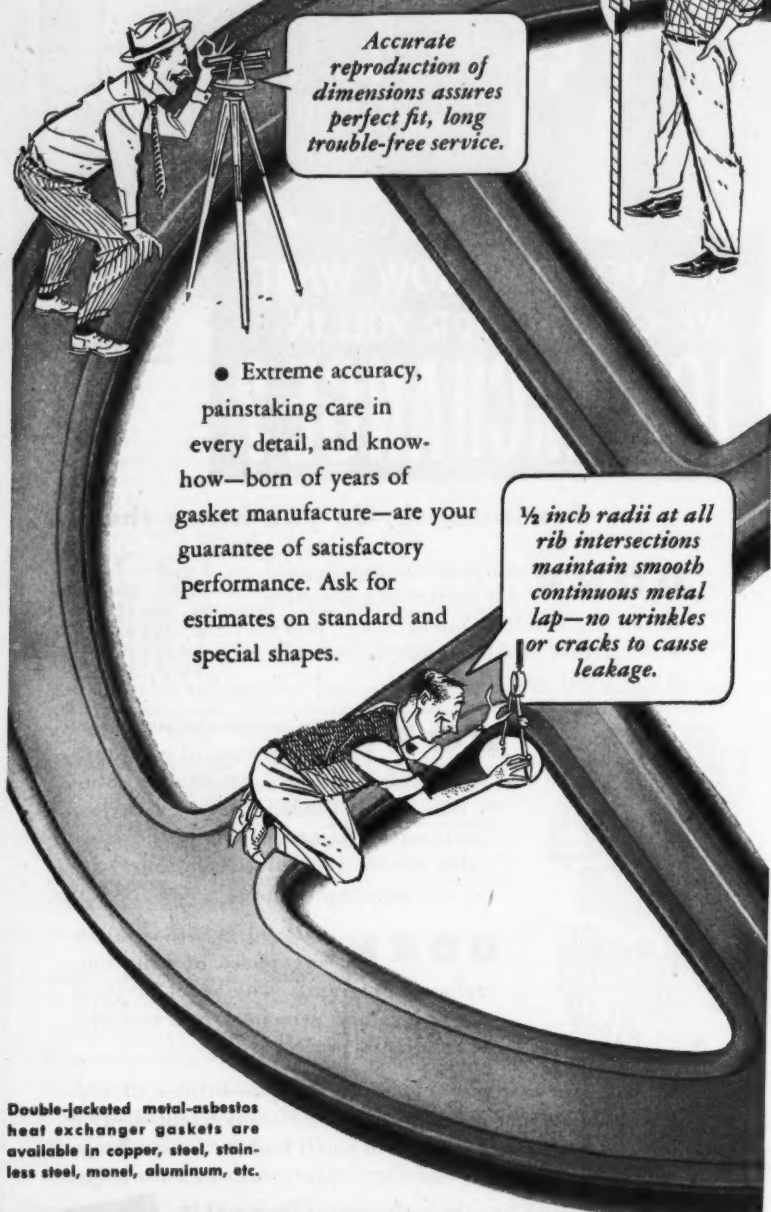
*DI is a trademark of The Dorr Company

WORLD - WIDE RESEARCH - ENGINEERING - EQUIPMENT

THE DORR COMPANY • ENGINEERS • STAMFORD, CONN.
Associated Companies and Representatives in the principal cities of the world

When inquiring check CP 7296 on handy form, pgs. 2-3

HEAT EXCHANGER GASKETS



Accurate reproduction of dimensions assures perfect fit, long trouble-free service.

• Extreme accuracy, painstaking care in every detail, and know-how—born of years of gasket manufacture—are your guarantee of satisfactory performance. Ask for estimates on standard and special shapes.

½ inch radii at all rib intersections maintain smooth continuous metal lap—no wrinkles or cracks to cause leakage.

Double-jacketed metal-asbestos heat exchanger gaskets are available in copper, steel, stainless steel, monel, aluminum, etc.

UNITED STATES GASKET COMPANY

618 N. 10TH STREET, CAMDEN, N.J.

LEADING FABRICATORS OF "TEFLON" FOR THE CHEMICAL, PROCESS AND ELECTRONIC INDUSTRIES



When inquiring check CP 7297 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Electrical contactor available with five poles . . .

either AC or DC solenoid can be used with 115, 230 volt units

Uses: Contactors may be used as main line, reversing and accelerating contactors on controllers; for starting single or multi-speed polyphase motors, or for starting single phase or slip ring motors.

Features: On units handling 115 or 230 volts, coils may be installed to operate, at these voltages, on AC or on DC. Small size of contactor, plus the fact that up to five poles are available, makes it useful in built-in controllers, or crowded panel boards.

Description: Size 0 contactors have overall dimensions (uncased) of 4-¼ x 7-1/16 x 3-½" for the three pole and 4-¾ x 7-1/16 x 3-½" for the five pole type with DC coil. Use of AC coils leads to a slightly smaller unit.

Contacts are silver-to-silver and handle from 1 hp at 115 v single phase to 2 hp at 550 v 3 phase even when enclosed. Resistive loads of 8 amp can be handled at voltages of 250 v and under.

Solenoid plunger travels in a guide which eliminates any complicated mechanism of linkages, pivots, etc.

Source: Maker is Ward Leonard Electric Co., Dept. CP, Mount Vernon, N. Y. . . . or for more information check CP 7298 on handy form, pages 2 and 3.

Heat exchange units for enclosed motors

Advantages and limitations of manufacturer's totally-enclosed motors with air-to-water heat exchangers are related in 4-page bulletin. Properly fitted enclosures keep out dust, dirt, fumes and excess moisture, according to the bulletin. As a result, maintenance is reduced and machine life lengthened. A description of the three types of cooler arrangements includes the following: in the foundation or ductwork below the machine; in the stator yoke or housings at the sides of the machine; or in an enclosure at the top of the machine. As an aid in estimation of water requirements for the coolers, a table is reproduced which gives results in gallons per minute. Bulletin 05B7682 is issued by Allis-Chalmers Manufacturing Co., General Machinery Div., Dept. CP, Milwaukee 1, Wis. When inquiring specify CP 7299 on handy form, pages 2 and 3.

1000 GALLONS DEIONIZED WATER 18c*
(equivalent to distilled water)
*Based on 10 grain water

Elgin MonoFlo Deionizer

Brings the cost of demineralized water within the range of those who have heretofore found evaporated or distilled water prohibitive in cost. Here is the perfect process water and feedwater.

The single column Elgin Deionizer produces water of higher quality than delivered by two and four-column demineralizers. In fact, for nearly all purposes, the water is freer from impurities than distilled water—and at a fraction of the cost. Naturally the compact Elgin MonoFlo Deionizer costs far less to buy and operate. It requires but little space—is simple in operation—cuts regeneration time and rinse water requirements—and has other notable Elgin features which make it today's outstanding deionizing equipment.

Write today for complete data

ELGIN SOFTENER CORPORATION

180 N. Grove Avenue, Elgin, Illinois

WATER CONDITIONING FOR EVERY NEED

When inquiring check CP 7300 on handy form, pgs. 2-3

In plants which actually manufacture the acids and alkalis you use, Prufcoat has been providing positive protection against costly corrosion for over 10 years now . . . on concrete floors, walls, ceilings, structural steel, tanks and other equipment. Write for Prufcoat literature.

Where Acids or Alkalies Destroy Prufcoat PROTECTS

NEW! PRUFCOAT METAL-REACTIVE PRIMER P-10

Does not require as complete surface cleaning as most other priming methods and works well on damp or dry surfaces. Write today for Prufcoat Technical Bulletin 012.

Prufcoat Laboratories, Inc.
50 East 42nd Street
New York 17, N.Y.



Preventive Maintenance PAYS!

When inquiring check CP 7301 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

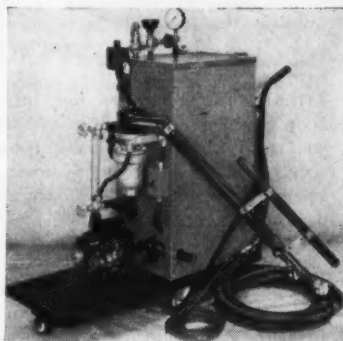
Stepping-up steam jet velocity speeds cleaning of equipment, fixtures, floors, windows . . .

involves little increase in power requirements; no low water hazard; no excessive dilution of solvent

Uses: For plant maintenance and industrial house-keeping. Removes dirt, grease, oil, and caked-on accumulations.

Features: Built to operate at pressures to 200 psi, thus giving faster cleaning of equipment, machine tools, fixtures, and windows. This stepping-up of velocity of the jet is achieved without appreciably adding to electric power requirements.

Unit is completely self-contained and is easily moved in close quarters. Cleaning is achieved with steam delivered from the unit's electric boiler. Small quantities of solvents are used effectively and economically. There is no dilution with quantities of water at the jet. There is no flooding of working area. Low-water danger is eliminated. Boiler water itself is the electric resistance heating element. When there is no water, no current passes and no steam is generated.



Compact steam-jet cleaner

Description: Unit is compact, being only 16" wide and 49" long. A twin-jet steam lance is precisely operated by means of finger-tip control. Water tank which is mounted on the all-steel truck has capacity for 3 to 4 hours' cleaning. Boiler (maker's model 600-S3 built under ASME code) carries National Board stamp and is Underwriters' Laboratories listed. Available for 220, 440, or 550 v. Rated at 20 kw.

Source: Speedyelectric Stream-Jet Cleaner Model JC-25 is built by Livingstone Engineering Co., Dept. CP, 100 Grove St., Worcester, Mass. . . or for more information check CP 7302 on handy form, pages 2 and 3.

Air separation plants for O₂, N₂ and rare gases

Twelve-page booklet details air separation plants for the large or small scale production of oxygen, nitrogen and gases such as technical argon. Four units are described along with flowsheets and photographs. Plants are standard sizes and types and range from small plants producing 8 and 24 liters per hour of liquid nitrogen to large oxygen or nitrogen plants for outputs of 200 cubic meters of oxygen per hour or more.

Two of the plants can be equipped to produce argon and other rare gases. Installations favorable for use are research laboratories, engineering establishments and chemical processes requiring large oxygen or nitrogen outputs. Technical data is included for the various units, such as purity of product, utilities consumption, and approximate shipping specifications. Gross weights vary from 8000 pounds up to 25 tons, excluding the largest plant. Publication PC 1/51 is issued by Petro-carbon Limited, Dept. CP, 170 Piccadilly, London, W.1, England.

OCTOBER, 1951

Yours for the asking—

TF TAYLOR FORGE SEAMLESS WELDING FITTINGS

Long Radius WELDELL Short Radius WELDELL Caps Stub Ends

WALL THICKNESS

CON. & EXT. REDUCINGS

REDUCING TEES

STRAIGHT TEES

ADL ADL ADL ADL

GENERAL OFFICES AND WORKS: CHICAGO 90, ILL. P. O. BOX 485, CHICAGO 90, ILL.

ON THIS SIDE
Data on the WeldELL line

TAYLOR FORGE ASA FORGED STEEL FLANGES

150 LB. FLANGES

300 LB. FLANGES

600 LB. FLANGES

900 LB. FLANGES

1500 LB. FLANGES

WELDING NECK FLANGE BORES

GENERAL OFFICES AND WORKS: CHICAGO 90, ILL. P. O. BOX 485, CHICAGO 90, ILL.

ON THIS SIDE
Data on
Taylor Forged Steel Flanges

A VOLUME OF DATA

. . . covering welding fittings and forged steel flanges . . .

ON A SINGLE SHEET

Here is just about the handiest tool ever devised for the pipe designer. Data on welding fittings and flanges that otherwise could be found only by plowing through many catalog pages and tables have been ingeniously condensed on the two sides of the durable letter-size card illustrated above.

One side covers the broad WeldELL line of Taylor Forge welding fittings. For every nominal pipe size, 1/2" through 30", it shows the wall thickness for every weight of every fitting in every available material. It also shows all required dimensions of all types of fittings.

The other side covers the world's most complete line of forged steel flanges. For every nominal pipe size, 1/2"

through 24", it gives all essential dimensional and bolting data for all types of flanges in all weights. A particularly useful table (see reproduction) is that showing welding neck flange bores which enables you to determine the I.D. of any nominal pipe size without separate calculation. Thus the sheet gives you O.D. and I.D. of any weight of pipe.

The card is varnished to make it stand the steady usage you are certain to give it. To obtain your copy see your Taylor Forge distributor or

MAIL THE COUPON.

Please send me one of your fitting and flange sheets:

NAME _____

POSITION _____

COMPANY _____

STREET ADDRESS _____

CITY _____ ZONE _____ STATE _____

315-1051 Mail to Taylor Forge & Pipe Works, P. O. Box 485, Chicago 90, Ill.

TF

TAYLOR FORGE

TAYLOR FORGE & PIPE WORKS

General Offices and Works: P. O. Box 485, Chicago 90, Ill.

Offices in all principal cities.

Plants at: Carnegie, Pa.; Fontana, Calif.; Hamilton, Ont., Canada

When inquiring check CP 7303 on handy form, pgs. 2-3

BARNSTEAD DEMINERALIZERS PROVIDE LOW-COST PURE WATER

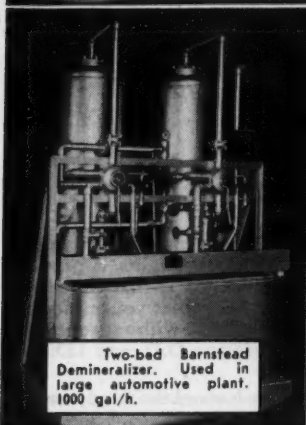
for • Electroplating • Anodizing
• Photographic Solutions
• Salt-free Rinse Water • Silvering
And Hundreds of Other Applications



Four-bed Barnstead Demineralizer providing pure, high resistance water for electronic mfg. 1000 gal/h.



Barnstead Four-Bed Demineralizer provides pure water for hot seal tank in anodizing. 30 gal/h.



Two-bed Barnstead Demineralizer. Used in large automotive plant. 1000 gal/h.



Four-bed Barnstead Demineralizer produces pure, sparkling-clear rinse water for pharmaceutical plant. 200 gal/h.

Selection of the best size and type of demineralizer for your operation depends on the nature of your raw water supply, flow rate needed, daily demand, and degree of purity required. Send a sample of your water to our Laboratory and Barnstead Engineers will perform the necessary analysis without obligation.

PROMPT DELIVERIES

Barnstead
STILL & STERILIZER CO.

66 Lanesville Terrace, Forest Hills, Boston 31, Mass.

When inquiring check CP 7304 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

**One operator analyzes
28 steel samples
in one hour . . .**

fast induction furnace needs only a 45 second warm-up period

Uses: For burning samples of steel for carbon analysis.

Features: Entire operation is unusually fast. Furnace is ready to operate 45 seconds after applying power, or may be left on stand-by between runs since it only draws 2 va then.

Description: The IH-10 high frequency induction furnace uses a modified Colpitts oscillator which operates at 11 megacycles. Converting this high frequency oscillation to heat by means of the familiar induction principle, the furnace brings samples to temperatures in excess of 3000°F. By heating within the sample only, this furnace avoids the lengthy heating of refractories as in conventional types. In operation, the sample is placed in a special crucible and oxygen connection is clamped on so as to be leak-proof. When sample is heated, the purified, pressurized oxygen is blown into the sample and exhausted to the analyzing train. Using one furnace of this type, a single operator has run as many as 28 weighings and analyses in one hour.

Source: Development of Laboratory Equipment Corporation, Dept. CP, St. Joseph, Mich. . . . or for more information check CP 7305 on handy form, pages 2 and 3.

Technical reprint surveys alloy welding rod

Illustrated 19-page technical reprint from Journal of The American Society of Naval Engineers, Inc., summarizes results of tests with commercially available welding rods of a special alloy. This alloy steel is modified with nickel, molybdenum and vanadium. Welds produced with the rod consistently showed yield strengths exceeding 110,000 psi and these welds were crack-free even though made without preheating.

Using 32 halftones, graphs and drawings and 3 tables, the publication details operating characteristics, welding procedure and the importance of low moisture content in the electrode coating described. "Nickel-Molybdenum-Vanadium Alloy Steel Shielded Arc Welding Electrodes (Low Hydrogen Type)" is issued by Dept. EZ, The International Nickel Company, Inc., Dept. CP, 67 Wall St., New York 5, N. Y. When inquiring specify CP 7306 on handy form, pages 2 and 3.

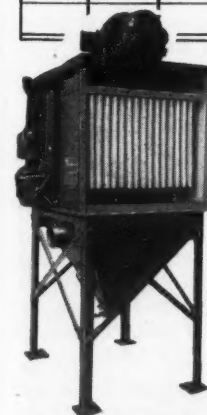
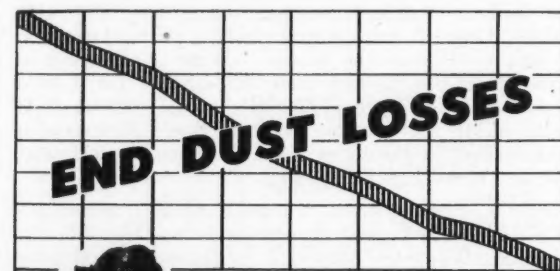


THERMO-MAT radiates live, penetrating heat from floor to knees! Insures foot and leg comfort wherever you stand or sit — in cabs, booths, at desks, check stands, counters and countless other locations! Melts ice and snow on doorsteps etc. Safe and effective even on damp concrete. Economical — operates for a few cents per day. Reversible, long-lived neoprene rubber compound cover, lasts for years. Measures 14" x 22". Plugs into any 110-120 Volt electrical outlet. Maintains uniform temperature. Order by mail today! \$11.95 delivered! Thoroughly tested. Thousands used. Performance guaranteed! Free Folder!

THERMO-MAT CO.

814-C So. Robertson Blvd., Los Angeles 35, Calif.

When inquiring check CP 7307 on handy form, pgs. 2-3



Type "CL" Collector with slide removed showing bank of screens

with Pangborn Industrial Unit Dust Collectors!

Don't let dust losses rob you of profits. Control dust in specific areas with Pangborn "CL" Unit Dust Collectors. They're delivered factory assembled, ready to use. Have non-sag, individually removable screen frames, motor-driven screen shaker . . . all-metal construction (except filter cloths). Models available with cloth area from 180 to 820 sq. ft. Write for Bulletin 912 to PANGBORN CORPORATION, 2700 Pangborn Blvd., Hagerstown, Md.

Look to Pangborn for the latest developments in Dust Control and Blast Cleaning equipment

Pangborn

DUST CONTROL

stops the dust hog from stealing profits

When inquiring check CP 7308 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Convention & Exhibit Schedule

1951

- Oct. 18-20. American Chemical Society and Southern Association of Science and Industry, Southwide Chemical Conference, Wilson Dam, Ala.
- Oct. 22-24. National Electronics Conference and Exhibition, Seventh Annual Meeting, Edgewater Beach Hotel, Chicago, Ill.
- Oct. 23. Association of Consulting Chemists and Chemical Engineers, Annual Meeting, Shelburne Hotel, New York, N. Y.
- Oct. 29-31. National Paint, Varnish and Lacquer Association, Chalfonte-Haddon Hall, Atlantic City, N. J.
- Nov. 1-3. Federation of Paint and Varnish Production Clubs, Chalfonte-Haddon Hall, Atlantic City, N. J.
- Nov. 5-8. American Petroleum Institute, Annual Meeting, Chicago, Ill.
- Nov. 5-8. Refrigeration Equipment Manufacturers Association, 7th All-Industry Refrigeration and Air Conditioning Exposition, Navy Pier, Chicago, Ill.
- Nov. 26-Dec. 1. 23rd Exposition of Chemical Industries, Grand Central Palace, New York, N. Y.
- Dec. 2-4. Chemical Specialties Manufacturers Association, Annual Meeting, Mayflower Hotel, Washington, D. C.
- Dec. 2-5. American Institute of Chemical Engineers, Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J.

1952

- Jan. 14-17. Plant Maintenance Show, Convention Hall, Philadelphia, Pa.
- Jan. 16-18. The Society of Plastics Engineers, Inc., 8th Annual National Technical Conference, Edgewater Beach Hotel, Chicago, Ill.
- March 10-14. National Association of Corrosion Engineers, 1952 Annual Conference and Exhibition, Buccaneer Hotel, Galveston, Tex.
- March 11-14. The Society of the Plastics Industry, Inc., Fifth National Plastics Exposition, Convention Hall, Philadelphia, Pa.
- March 16-19. American Institute of Chemical Engineers, Regional Meeting, Biltmore Hotel, Atlanta, Ga.
- April 7-9. The American Society of Lubrication Engineers, Seventh Annual Meeting and Lubrication Show, Hotel Statler, Cleveland, Ohio.
- April 9-11. The Society of the Plastics Industry, Inc., Seventh Annual Technical Session, SPI Reinforced Plastics Division, Edgewater Beach Hotel, Chicago, Ill.
- May 6-9. Scientific Apparatus Makers Association, Annual Meeting, Edgewater Beach Hotel, Chicago, Ill.
- May 11-14. American Institute of Chemical Engineers, Regional Meeting, French Lick Springs Hotel, French Lick, Ind.
- Sept. 4-6. American Institute of Chemical Engineers, Regional Meeting, Palmer House, Chicago, Ill.
- Dec. 7-10. American Institute of Chemical Engineers, Annual Meeting, Cleveland Hotel (headquarters) and Carter Hotel, Cleveland, Ohio.

OCTOBER, 1951

TYGON

Versus
 H_2SO_4

ONE good answer to many sulfuric acid corrosion problems is the versatile TYGON family of plastic compounds. Consisting of carefully compounded polyvinyl resins, TYGON—as a material of construction, as a medium of transmission, and as a protective coating—exhibits outstanding resistance to sulfuric acid over a wide range of concentrations and conditions.

TYGON is available in molded, calendered and extruded form, as a plastisol and as a solvent type paint. Each form is specifically suited for certain applications. Each has its limitations. All have the basic characteristics of vinyl based materials. All are backed by the "know-how" of almost 87 years experience in corrosion control.

As a material of construction, TYGON is used primarily in sheet or molded form, although extruded tape, channel, or solid cord is sometimes used. In 3/32" thick sheets TYGON is used to line tanks, drums, and hoppers; to protect fume hoods and ducts; to cover work tables and floor areas. TYGON sheets are also cut into gaskets for positive, enduring seals in all types of process equipment. TYGON sheet resists sulfuric acid, its fumes and salts, for long periods in concentrations up to 42°-55° Bé acid, or equivalent, depending upon the compound used. Service temperature limit ranges from 150° to 175°F. Molded TYGON sees service as grommets, washers, gaskets, stoppers, handles, bumpers and special fittings. In these forms, TYGON resists up to 55° Bé acid at temperatures ranging up to 200°F. With either sheet or molded TYGON, prolonged contact with fuming sulfuric acid, sulfuric anhydride, and mixed acids is not recommended without the counsel of U. S. Stoneware engineers.

As a piping medium, TYGON is most generally used in the form of extruded tubing. However, some short flexible couplings and other special fittings may be molded, or cast from plastisols. Lightweight, flexible TYGON Tubing, in sizes up to 2" ID, is used

as temporary or permanent transfer lines, as flexible connections, as inlet and discharge ports on acid pumps, as gas lines, or as syphon hoses. TYGON Tubing resists up to 55° Bé sulfuric acid at temperatures as high as 200°F. Specific temperature limits vary according to the compound used, the pressures involved and the wall thickness of the tubing. Where constant pressures of more than 40 psi are involved, braided jacket reinforcement is available and should be used. Prolonged use with fuming sulfuric acid, sulfuric anhydride, and mixed acids is not recommended without consultation.

As a paint, TYGON affords excellent protection to tanks, equipment, structural steel, walls and ceilings, against the fumes or spillage of sulfuric acid in any concentration. Temperature limit is approximately 200°F. The limitations of a thin film should be realized and contact, other than brief or intermittent, with concentrated acid, moist sulfur trioxide, and mixed acids should be avoided. For mild environments a primer and no less than two top coats should be used. For severe exposures a minimum of five coats plus primer is advised.

For a heavier duty coating, TYGON as a plastisol (TYGOFLEX) can be applied by dipping and fusing, or by spraying. TYGOFLEX is particularly suited to the application of a thick coating on intricate shapes, with or without adhesion.

In any of its forms, TYGON provides low cost protection and high degree of safety in the handling of not only sulfuric acid and related chemicals, but a wide range of other acids, alkalies, oil, greases and water. The number of forms available and the flexibility possible in mechanical, physical and chemical properties of the standard compounds permit its proper use in many applications. The versatility of TYGON is further increased by the availability of custom compounding and molding. For the best results with TYGON, consultation with U. S. Stoneware engineers is strongly urged.



In addition to TYGON in its various forms, we also manufacture a number of other materials capable of handling sulfuric acid in any concentration and under all types of operating conditions. These products include chemical stoneware and porcelain, acid proof brick and cements, homogenous lead linings, and other organic linings and coatings. Why don't you submit your corrosion problem, today? There's no obligation and we'll be pleased to be of assistance. So write, now!

181c

THE UNITED STATES STONEWARE CO., Akron 9, Ohio

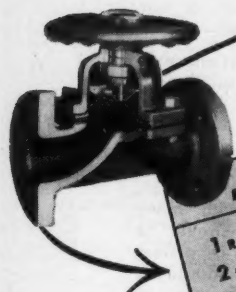
ENGINEERS, MANUFACTURERS, ERECTORS OF CORROSION-RESISTANT EQUIPMENT SINCE 1865

When inquiring check CP 7309 on handy form, pgs. 2-3

WHAT WOULD YOU SPECIFY

Fluid	Concentration	Temp.	Type of Valve	Valve Material
1 Sulphuric Acid	20%	120 F.		
2 Sulphuric Acid	100%	180 F.		
3 Hydrochloric Acid	32%	80 F.		
4 Hydrofluoric Acid	30%	125 F.		
5 Beer		200 F.		
6 Oxygen		Ambient		

We supplied
Grinnell-Saunders
Diaphragm Valves
with ...



Body Material	Diaphragm Material
1 Rubber lined	Natural rubber
2 Cast iron	KEL-F
3 Glass lined	Butyl
4 Magnesium	KEL-F
5 Polished bronze	White diaphragm
6 Cast iron*	Neoprene

*For oxygen service a high flash point lubricant is supplied. All valves for oxygen service are subjected to 300 lb. air underwater test.

In several of these cases other body materials or diaphragms might serve. Really important is the versatility of Grinnell-Saunders Diaphragm Valves in handling corrosive fluids, gases, compressed air, food, suspended solids . . . where corrosion, abrasion, contamination, clogging, leakage, maintenance are problems.

Grinnell-Saunders Valve bodies are stocked in cast iron, malleable iron, stainless steel, bronze, and aluminum, with other materials available on special order. Valve bodies can be lined with lead, glass, natural rubber or neoprene. Diaphragms are available of natural rubber and a number of synthetics to suit particular service conditions.

Features of the Grinnell-Saunders Diaphragm Valve

- * diaphragm absolutely isolates working parts from fluid
- * diaphragm lifts high for streamlined flow in either direction
- * diaphragm presses tight for positive closure
- * body, lining and diaphragm materials to suit service
- * simple maintenance — diaphragm easily replaced.



GRINNELL

WHENEVER PIPING IS INVOLVED

Grinnell Company, Inc., Executive Offices, Providence, R. I.
Sales Offices and Warehouses in Principal Cities

NEW DEVELOPMENTS to be seen at the CHEMICAL EXPOSITION—A Preview

Continued from page 25

POWDER FILLING MACHINE

Incorporating an auger type filler, the unit is suitable for non-free-flowing powders. Designed for filling under aseptic conditions, the machine can be used for measuring small doses of antibiotics, for example. Range of operation covers 15 to 25 vials per minute and a capacity of 25 mg to 7 gm.

Chiksan Company, Brea, Calif.

BALL BEARING SWIVEL JOINTS

In addition to the ball bearing swivel joints, this manufacturer will exhibit unions and thread compounds. Suitable for liquid, air, gas and conditions of vacuum, the products find application in refineries, chemical, textile, paper and steel industries.

Cleaver-Brooks Company, Milwaukee 12, Wis.

BOILER and DISTILLATION EQUIPMENT

Pictorial exhibit will include a file of case histories where application of this equipment has been made to chemical process industry.

The Cleveland Worm & Gear Company, Cleveland 4, Ohio

SPEED REDUCER for COOLING TOWER

Used in connection with air conditioning equipment and cooling towers, this speed reducer operates very quietly. It is built for high speed, heavy duty, continuous service. Cutaway model will demonstrate forced lubrication of fan shaft bearing.

Coleman Instruments, Inc., Maywood, Ill.

LABORATORY INSTRUMENTS

Coleman Model 19 Autotitrator is stated to give a completely automatic performance of any titration in which the end point can be related to an electrode potential. Another item to be exhibited is the Coleman Model 18 Line-Operated pH Electrometer.

Arthur Colton Co., Detroit 7, Mich.

TABLET PRESSES, OVEN & GRANULATOR

Model #216 rotary press is capable of 800 tablets per minute up to 5/8" diameter. Model #233 press has a capacity of 1900 tablets per minute up to 7/16" diameter. It is stated that the granulator brings an increase

of efficiency up to 150%. Model #1018E oven, it is claimed, cuts drying costs by 45 to 50%. A 35 gallon mixer and bench-type tablet press will also be shown.

Combustion Engineering-Superheater, Inc., New York 16, N.Y.

STEAM GENERATOR & UNIT BOILER

Two action displays of C-E vertical unit boiler, Type VU-10 will be seen. The C-E steam generator employs principle of "controlled recirculation" in its design.

Commercial Filters Corporation, 18 W. Third St., Boston, Mass.

FILTER TUBES

Honeycomb filter tubes fabricated from orlon, nylon, dynel, and glass fibers will be shown in addition to manufacturer's regular line of Fulflo filters and tubes.

Continental Can Company, Inc., New York 17, N.Y.

DRUMS

Suitable for shipping of dry chemicals, drugs and food stuffs, these drums can withstand drops up to four ft loaded to capacities up to 400 lb. Drums range in size from 3/4 to 75 gal and are constructed of fiber with some featuring metal covers and bottoms, metal chimes and lever locking devices.

Corning Glass Works, Corning, N.Y.

GLASS CASCADE HEAT EXCHANGER

Constructed of Pyrex brand glass, unit is applicable to cooling corrosive liquids or for use where water supply is corrosive.

Croll-Reynolds Co., Inc., New York 38, N.Y.

VACUUM EQUIPMENT

Steam Jet Evactor nozzles and throats made entirely of Teflon; also, a complete assembly of standard high vacuum ejector. This equipment is suitable for handling corrosive vapors from stills, evaporators, dryers and other vacuum vessels.

The Day Company, Minneapolis 13, Minn.

DUST FILTER

Partially open "AC" automatic continuous dust filter

CHEMICAL PROCESSING

will illustrate working principles. Operation of this equipment is automatic and no section needs to be shut down for cleaning.

The J. H. Day Co., Inc., Cincinnati 22, Ohio

MIXING EQUIPMENT

Shown will be dispersion mills, blenders, gyrating mixers, double arm mixers, pony mixers and kneading mixers. Feature of sifter is a plastic top to permit observation of operation.

The Dorr Company, Stamford, Conn.

DORRCLONE

Three-inch diam DorrClone will be shown in operation. Unit separates suspensions in liquids much as a cyclone does for suspensions in gases. It is applicable to desliming, fine-size classification, dewatering and degritting. Typical capacities of a 24" separator are 500 to 1000 gpm depending on inlet pressure and desired mesh of separation.

FLUOSOLIDS SYSTEM

Animated flow chart will show the application of this equipment to the production of high-strength SO_2 gas. Unit has been used in calcination of ores, minerals and mineral products.

During 1951 its use has been extended to SO_2 production from sulfides. Gas strength averages 14-15% SO_2 on a dry basis when starting material carries 48-50% sulfur, it is reported.

The Duriron Co., Inc., Dayton 1, Ohio

CORROSION RESISTING VALVES

With a Teflon liner and diaphragm, the Type F plug valve features no metal-to-metal contact, no lubrication, and no galling or sticking. These valves are available in $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$ and 1" sizes and with both threaded and flanged ends.

Manufacturer's Durimet 20 is regular material of construction, but other corrosion resisting alloys can be specified by customer.

Eastern Stainless Steel Corp., Baltimore 3, Md.

STAINLESS STEEL SHEETS

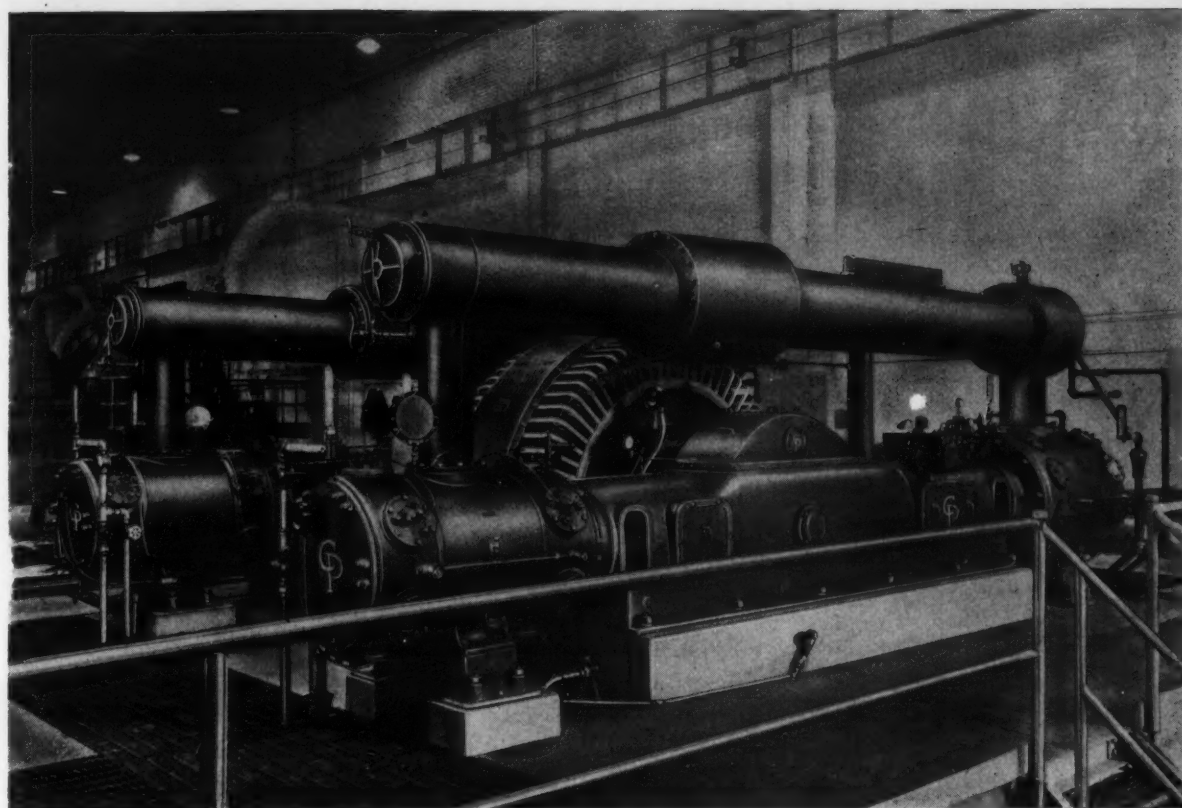
Will feature 100-grit finish stainless steel sheets finding application in beverage equipment, chemical processing, laundry and hospital equipment.

Eclipse Fuel Engineering Co., Rockford, Ill.

DOWTHERM VAPORIZER

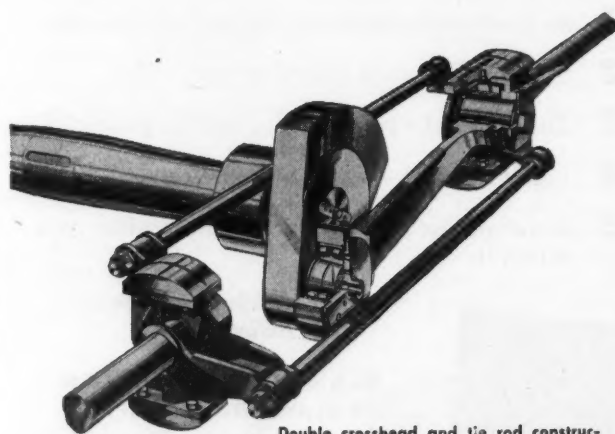
Unit is used for processing varnish, deodorizing animal and vegetable fats, melting asphalt, producing resins, caustic soda and similar processes requiring temperatures up to 700°. A Pyrex model will show construction of horizontal cylindrical shell, internal furnace, and return fire tubes.

(Continued on next page)



CP FOUR-CORNER motor-driven compressors

6,000 to 12,000 cfm piston displacement at 100 lbs. pressure



Double crosshead and tie rod construction provides straight-line transmission of power — with only one connecting rod. Roller bearings and crank discs are mounted by the oil injection method.

Class H-CE Duplex Synchronous Motor-Driven Compressors have anti-friction roller bearings throughout: spherical roller main and crankpin bearings... heavy-duty needle bearings at cross-head pins.

The use of roller bearings in the running gear, and the oil injection system of bearing installation and removal, eliminate all danger of misadjustment in maintenance, and permits the use of one-piece crank disc and solid-end connecting rods — the strongest and safest type.

Write for Bulletin 726-C



**CHICAGO PNEUMATIC
TOOL COMPANY**

General Offices: 8 East 44th Street, New York 17, N. Y.

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES
ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

When inquiring check CP 7311 on handy form, pgs. 2-3

Tell Us Your Production Problems...We'll Help You Solve Them

"LOGAN" Rotating and Nonrotating AIR CYLINDERS

Fast-Acting, Positive Controlled Power...At LOW COST

NONROTATING— 7 STANDARD MOUNTING TYPES

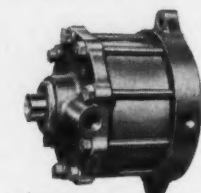
Standard sizes from 1½" to 12" bore; maximum stroke, 18 feet. Special models to meet your requirements.

Logan Features—Larger Ports... More Sturdy Construction... Maximum Power Without Leakage... Permanent Seal Around Piston Rod... Standard Models With or Without Cushioning.

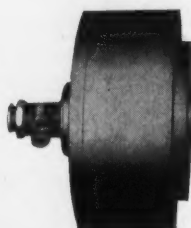
ROTATING—

Two Standard Styles—Model R with cast iron body; Model K with lightweight aluminum body.

Bore diameter 1½" to 20"; piston stroke 1" to 2"; longer strokes available as special. American Standard adaptations; simple, efficient design to assure positive, rapid, economical operation.



Nonrotating Double-Acting Air Cylinder



Rotating Air Cylinders

Logan Manufactures
6,975 Standard
Cataloged Items

Free Catalog On Request

AIR CONTROL VALVES CATALOG 100-4
AIR CHUCKS CATALOG 70-1
AIR CYLINDERS CATALOG 100-1
AIR and HYDRAULIC PRESSES CATALOG 51
COLLET GRIP TUBE FITTINGS CATALOG 44
HYDRAULIC CONTROL VALVES CATALOG 200-4
HYDRAULIC CYLINDERS CATALOG 200-2; ALSO 80-2
HYDRAULIC POWER UNITS CATALOG 200-1
SURE-FLOW COOLANT PUMPS CATALOG 62

Let Logan Engineers
help you design your Air
and Hydraulic Circuits.

Logan
Air and Hydraulic Equipment
LOGANSPOUT MACHINE CO., INC. 835 Center Ave.
Logansport, Ind.

FLUID POWER SPECIALISTS SINCE 1916

When inquiring check CP 7312 on handy form, pgs. 2-3

Trainmen say— "BLAW-KNOX RUNNING BOARDS ARE SAFEST" Because...

- 1 Serrated bearing bars—sure footing in any weather.
- 2 Self-cleaning—mud and snow can't collect.
- 3 Electroforged—permanently, solidly assembled.
- 4 Easily replaced—repairs made quickly.
- 5 Standard size sections—firm footing where you expect it.

For complete data write for
Bulletin 2328.

**BLAW-KNOX DIVISION
OF BLAW-KNOX COMPANY**
2076 Farmers Bank Building, Pittsburgh 22, Pa.
Offices in Principal Cities

BLAW-KNOX Electroforged® **STEEL** **RUNNING BOARDS
AND BRAKE STEPS**

When inquiring check CP 7313 on handy form, pgs. 2-3

CHEMICAL SHOW PREVIEW

(Continued from preceding page)

Eco Engineering Co., 12 New York Ave., Newark, N.J.

PUMPS

Positive displacement pumps move liquids without any shearing effect. This reduces aeration and foam formation. When used with rotary vacuum filters, the pump produces a 28" vacuum.

The Eimco Corp., Salt Lake City, Utah

FILTERS

Laboratory type filter is proportionally designed for easy conversion of results from a laboratory scale to production. Design is reported to give faster filtration, longer life of media, drier cakes, and clearer filtrate—all important advantages.

The Electric Hotpack Co., Inc., Philadelphia 35, Pa.

PORTABLE CONSTANT TEMPERATURE ROOM

Featuring a temperature range from 35° to 60°C, the room is completely prefabricated and can be assembled on location in 2 or 3 hours by bolting sections together. More than 90 sq ft of standard shelf space are provided, and the double aluminum walls have 3" insulation. The three sizes available each have 4 ft widths and 7 ft heights, with only the depth varying as follows: 4, 6 and 8 ft. Typical uses include specific gravity determinations, conductivity tests, physio-chemical and botanical experiments, aging tests and for use in bacteriological incubation.

Emery Industries, Inc., Cincinnati 2, Ohio

FATTY ACIDS & DERIVATIVES

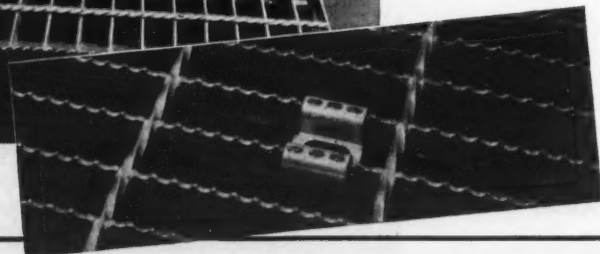
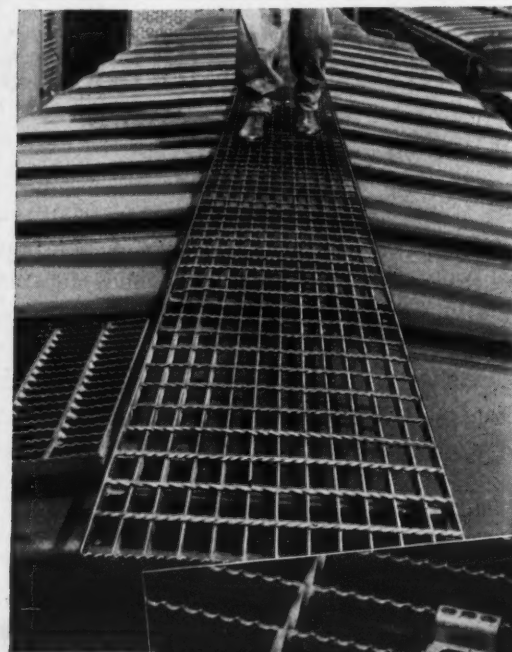
Samples of all standard fatty acid and derivative sales products and development products will be displayed. Feature will be a push button panel of end uses which will light up Emery products that apply to any specific end use. Two recent development products will be exhibited: Emery C-842-R Stearone, a 35 carbon, straight chain ketone with suggested use as a wax substitute or extender, and also as an antifoam agent; and, Emery A-805-R Stearanylde, a hard, odorless waxy solid which shows promise as a wax substitute and extender for polishes, paper coatings, etc. In addition, plasticizers, textile oils, cutting oil bases and fat splitting reagents are manufactured.

Enzinger Union Corporation, Angola, N.Y.

SLUICING DEVICE

Device sluices off spent filter cake at end of cycle without opening filter tank cover. It uses no moving parts. Cake can be sluiced in a matter of five to ten minutes. The Enzinger Union Stationary Sluicing Device is constructed of a number of spray nozzles located between the filter leaves. The water jets from these spray nozzles cover both sides of all leaves simultaneously. Average sluicing cycle on 560 square feet filter with sugar liquors was 5.07 minutes over 120 days.

CHEMICAL PROCESSING



riez Manufacturing Co., Erie, Pa.

MAGNETIC DRUM

This piece of equipment is used in processing lines for effective tramp iron removal where materials are not conveyed on belts. Material is fed onto the drum, which revolves around a fixed magnetic field that is one half the diameter of the drum. Magnetizable material is pulled to the shell of the drum while clean material falls free. The revolving shell then carries the ferrous contamination out of the effective range of the magnetic field where it falls into a chute or container.

MAGNETIC PIPELINE TRAP

This unit is designed for installation in all types of liquid lines. It affords protection to processing equipment such as pumps, screens, grinders, etc., by catching tramp iron.

MAGNETIC PULLEY

This class of magnetic separator removes tramp iron from belt-conveyed materials. As the product to be cleaned reaches the pulley on the belt, the ferrous material is held until carried out of the magnetic field beyond a divider where it falls off into a container.

PLATE-TYPE MAGNETS

Consisting of a series of magnetic alloy castings mounted on magnetic steel plates, the units find use over and under belts, or in chutes, spouts, etc.

RCA UTILITY METAL DETECTOR

An electronic detector which permits continuous inspection of non-metallic material which is fed through an inspection aperture by a conveyor belt, chute or some other type of conveying equipment. As the material being inspected passes through the aperture field, the presence of any metallic particle actuates a signal or marking device, an automatic ejector or any combination of controls the operation may require.

STEEL TANK MAGNET

Designed to keep plating tanks free of iron contamination, the unit when lowered into the tank can be propelled carpet-sweeper fashion along the bottom or may be moved up and down the sides through the solution.

Exolon Co., Tonawanda, N.Y.

GRADER

Exolon Multi-Form Grader consists of a series of screens set at angles and supported by double spring steel strips from a rigidly built base. The screens are vibrated in a horizontal plane by a reciprocating drive. In operation, the over-size material is carried off through chutes at the end of each screen while the material passing through goes into a pan where it is conducted through a wide chute onto the next finer screen.

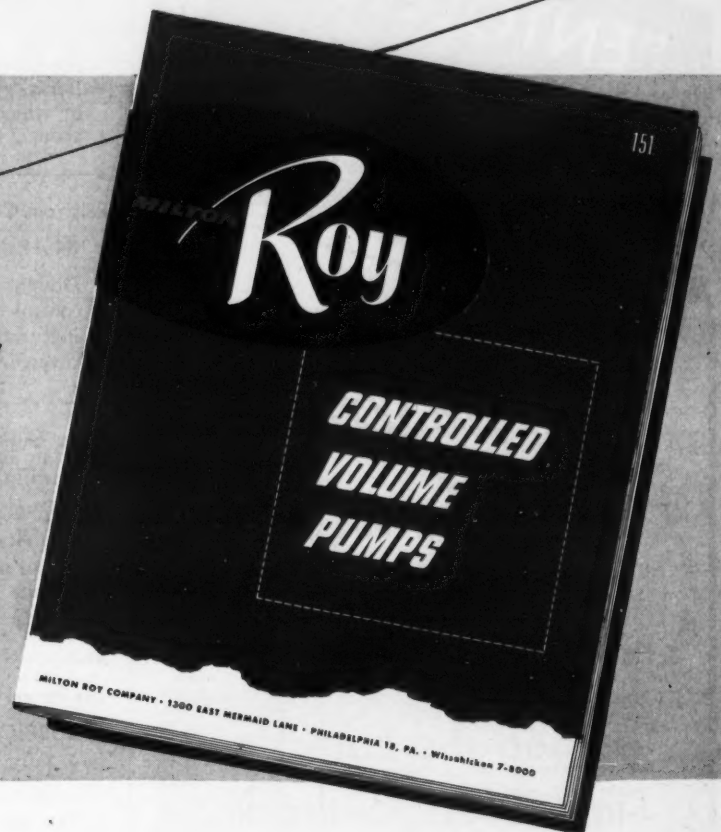
MAGNETIC SEPARATOR

Material to be separated is fed in granular form to the

(Continued on next page)

CONTROLLED VOLUME PUMPING

**This Milton Roy
Bulletin No. 151
Gives You
COMPLETE
DETAILS**



Bulletin No. 151 is filled with information on controlled volume pumping. Here are a few of the many important details you'll find in the book:

- an explanation of controlled volume pumping.
- a description of what controlled volume pumping can do for you—what it does for others in the chemical, textile, petroleum, pulp and paper, paint, food and beverage, water treatment, pharmaceutical, and brewing industries and in instrumentation, pilot plants and laboratories.
- a description of how Milton

Roy Controlled Volume Pumps give users maximum benefits; how any desired rate of delivery, from zero to full capacity, can be maintained with accuracy; how deliveries as low as 3 milliliters per hour can be held with precision; how difficult-to-pump materials, such as slurries, viscous liquids, solids in suspension, etc., are readily handled.

- 4 pages of color charts which show in dramatic "traffic-light" style the relative corrosion resistance of materials of construction to over 170 chemicals. These valuable reference charts summarize industry-wide data.

- a description of the features that make Milton Roy Controlled Volume Pumps perform flawlessly on services where no other pump has filled the need.

If your operations call for pumping a controlled volume of liquid in amounts as much as 50 gallons per minute or as little as 3 milliliters per hour, you'll find this book extremely valuable.

For your free copy of the 24-page, 2-color Milton Roy Bulletin No. 151, write or call the Milton Roy representative listed in your telephone directory. Or, if you prefer, write direct to us.



MILTON Roy COMPANY

1354 EAST MERMAID LANE, PHILADELPHIA 18, PA.

MANUFACTURERS OF CONTROLLED VOLUME PUMPS AND AUTOMATIC CHEMICAL FEED SYSTEMS

When inquiring check CP 7314 on handy form, pgs. 2-3

"ENTOLETER" Exhibit of New Equipment

at the

Exposition of Chemical Industries

See the Latest
Improved Methods
for **DUST**
COLLECTION
and for
HIGH SPEED
MIXING...

Booth 460-461

ENTOLETER DIVISION

The Safety Car Heating and Lighting Co., Inc.
1185 Dixwell Avenue, New Haven 4, Conn.

CHEMICAL SHOW PREVIEW

(Continued from preceding page)

first of a series of rotors each magnetized by induction and revolving in a magnetic field. The particles of magnetizable material are diverted by a knife edge divider and removed from the grain stream. Material not so removed is fed to the next rotor in the series. Borax, gypsum, silica and clays are some of the materials to which the operation can be applied. Capacity is about 2 to 4 tons per hour of head feed.

Falstrom Company, Passaic, N.J.

INSTRUMENT PANELS and ENCLOSURES

Designs and methods will be shown for instrument and control boards, cabinets, panels, and enclosures. Lighting, materials of construction, erection and other factors covered.

Farris Engineering Corp., Palisades Park, N.J.

SAFETY & RELIEF VALVES

Exhibit will include safety and relief valves and the BalanSeal Bellows which is used whenever a collecting system is required for a series of safety-relief valves. It permits higher downstream pressure with consequent smaller piping.

The Farval Corporation, Cleveland 4, Ohio

LUBRICANT SPRAY VALVES

Valve will deliver a measured amount of oil or grease to open bearing surfaces in the form of a spray. Device makes possible the lubrication of machines while they are running.

Fenwal Incorporated, Ashland, Mass.

FIRE DETECTION EQUIPMENT

Detect-A-Fire unit is a hermetically sealed unit which will detect fire or overheating. It is rate compensated so that it depends entirely on actual temperature, regardless of the rate of rise.

Filtration Engineers Incorporated, Newark 5, N.J.

FILTERS & CHEMICAL RESISTANT WORK CLOTHES

A filter will be shown which is suitable for industrial pilot plant and semi-plant operations where continuous filters are required. Synthetic fiber cloth made of nylon, vinyon, dynel and orlon for all types of pressure filters, vacuum filters and dust collectors. Chemical resistant work clothing including shirts, pants, coveralls and lab coats.

Fischer & Porter Co., Hatboro, Pa.

INDUSTRIAL CONTROL INSTRUMENTS

Principal uses include determination and control of flow, viscosity, level, specific gravity, pressure and temperature.

IS VACUUM

That's 99.99% Perfect

good enough for your process?

This degree of vacuum is easily obtained with the Croll-Reynolds four or five-stage steam jet EVAC-TOR, with no moving parts. Each stage from a technical standpoint is as simple as the valve that turns it on. Numerous four-stage units are maintaining industrial vacuum down to 0.2 mm. and less, and many thousands of one, two and three-stage units are maintaining vacuum for intermediate industrial requirements on practically all types of processing equipment.



By permitting water, aqueous solutions or any volatile liquid to evaporate under high vacuum and without heat from an outside source, enough BTU's can be removed to chill the liquid down to 32°F., or even lower in the case of solutions. This is the principle of the Croll-Reynolds "Chill-Vactor." Hundreds of these have been installed throughout the United States and in several foreign countries.

An engineering staff of many years experience has specialized on this type of equipment, and is at your service. Why not write today, outlining your vacuum problem.



CROLL-REYNOLDS CO., INC.

Main Office: 751 Central Avenue, Westfield, New Jersey

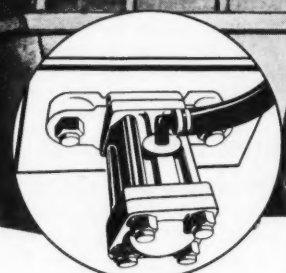
17 John Street, New York 38, N. Y.

Chill-Vactors • Steam Jet Evactors • Condensing Equipment

When inquiring check CP 7316 on handy form, pgs. 2-3

MOVE MATERIALS

with
SPO
AIR VIBRATORS



Steady jam-free flow of granular or powdered materials is assured by use of SPO air vibrators. Delivering powerful hammer-like blows, these sturdy units prevent clogging and packing in bins, hoppers and chutes. Exclusive feature of all SPO air vibrators is a special corrosionproof bronze alloy cylinder liner which provides thorough lubrication, full-power starting, high-speed operation and maximum service life.

SPO offers a complete range of types and sizes designed to meet every vibration need. **Blow for Blow, you can't beat SPO air vibrators!**

For complete information, write today for Bulletin 50.

246 SI



INCORPORATED

6531 Grand Division Ave. • Cleveland 25, Ohio

When inquiring check CP 7317 on handy form, pgs. 2-3

CHEMICAL PROCESSING

When inquiring check CP 7315 on handy form, pgs. 2-3

(ADVERTISEMENT)

Teflon "V" Rings constitute closest possible approach to a universal packing . . .

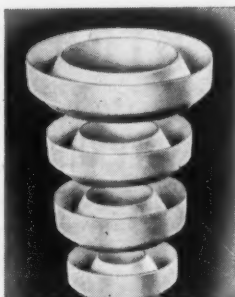
Newest Crane Packing Company "Chemlon" Product Features Special Molding Process and Patented Cross-Section Design

USES: All types of valve requirements, including rotary, spiral and reciprocating stem action; many centrifugal and rotary pumps; all reciprocating pump applications.

FEATURES: Molded from pure Teflon having chemical inertness unsurpassed by any other known packing material. These rings resist operating temperatures from as low as -94°F up to 500°F. They positively will not shrink, swell, harden, dissolve, corrode or deteriorate with age. Low friction characteristics cannot be matched; 1/15 that of compression packing is not unusual.

DESCRIPTION: Chemlon V Rings are furnished in a large number of stock sizes; additional sizes can be molded at a very nominal extra charge. Cross-section design allows effective sealing at finger tight gland pressure. Special molding process gives rings extra resiliency.

SOURCE: Crane Packing Co., Dept. CP-10, 1821 Cuyler, Chicago 13, Ill. Write for information on Teflon V Rings . . . and the complete Chemlon line of braided, molded, extruded and machined Teflon products.



(ADVERTISEMENT)

When inquiring check CP 7318 on handy form, pgs. 2-3



Switch to PLATECOIL for
(REPLACES PIPE COIL)
TROUBLE-FREE Tank Heating and Cooling

Platecoils have many times the useful life of pipe coils thus preventing many production delays. When repairs are necessary, plates are changed from outside the tank in a matter of minutes without dumping tank solution. You can save STEEL, MAN-HOURS and MONEY by using Platecoils and you will enjoy TROUBLE-FREE heating and cooling.

NEW Technical Manual No. P54 simplifies the solution of heat transfer problems. Send for your copy today.



When inquiring check CP 7319 on handy form, pgs. 2-3

OCTOBER, 1951

CHEMICAL SHOW PREVIEW

Fisher Scientific Co., Pittsburgh 19, Pa.

LABORATORY EQUIPMENT

Exhibit will include laboratory glassware washer, constant temperature bath, portable industrial pH meter, analysis burette illuminator, safety devices, and other equipment for the industrial laboratory.

Fletcher Works, Inc., Philadelphia 40, Pa.

VARIABLE SPEED CENTRIFUGALS

For dewatering crystalline solids are the three sizes of variable speed centrifugals to be shown.

Flexible Valve Corp., Palisades Park, N.J.

PINCH TYPE VALVES

Non-clogging, abrasion and corrosion resistant valves will close on materials up to 1/4" in size. Manufactured in both handwheel and diaphragm air operated types, it is stated that the valves will handle any materials a pipe will pass. Flanged and slip-on construction are available.

John Bean Division

Food Machinery and Chemical Corp., Lansing 4, Mich.

POWER PUMPS

Utilizing hardened, ground, stainless steel outside packed plungers with bevel seat poppet valves, these pumps are intended for applications requiring high pressure. Capacities from 0.5 to 80 gpm.

The Foxboro Co., Foxboro, Mass.

INSTRUMENTATION

Display will feature instrumentation possessing performance qualities and characteristics of full-size instruments but occupying greatly reduced panel space. Manufacturer's model 56 Consotrol Recorder measures 6 x 6" and has a four inch linear chart with full readability, two-step bumpless transfer switch and control point remote setting device. Model 52 Consotrol Controller, 3 3/8 x 7-5/16", features driftless control point setting and valve position indicator. General application includes indicating, recording and controlling pressure, temperature, flow and other process variables.

Fuller Company, Catasauqua, Pa.

PNEUMATIC CONVEYING EQUIPMENT

Exhibit will also include: feeders, material level indicators, coolers, compressors, and vacuum pumps.

General American Transportation Corp.
Louisville Drying Machinery Unit, Louisville 2, Ky.

ROTARY DRYER

For drying certain kinds of bulk materials, type "H"

(Continued on next page)



Handy is the word operators use to describe AIRETOOL condenser and heat exchanger tube cleaners. They are very light in weight, yet extremely powerful. All moving parts are made of heat treated alloy steel.

Special construction features include a convenient handle valve for positive operator control, a flushing device that permits brush or drill heads to run cool under all scale conditions and a powerful motor that can be taken apart and re-assembled on the job without special tools.

Get your small tube cleaning situation "well in hand." Order these effective maintenance tools in time for your next small tube cleaning round. You'll be more than satisfied with results.

For more details, write The AIRETOOL Mfg. Co., 331 S. Center Street, Springfield, Ohio.



AIRETOOL

MANUFACTURING COMPANY

SPRINGFIELD, OHIO

BRANCH OFFICES:
New York, Philadelphia, Chicago,
Houston, Tulsa, Baton Rouge

There's an AIRETOOL Tube Cleaner and Tube Expander for every type of tubular construction.

When inquiring check CP 7320 on handy form, pgs. 2-3

**LIQUID TO POWDER
IN A SPLIT SECOND!**

FOR
CHEMICALS
FOOD PRODUCTS
SOAP POWDERS
CLAYS & CLAY SLIPS
PLASTICS
BY-PRODUCTS
WASTES

Instant Drying System Units are operating commercially on the drying of these materials. A large manufacturer of wall tile says their Instant Drying equipment "has produced . . . greater quantity . . . better quality . . . an economy of labor and an ultimate over-all cost reduction for the finished product."

LOW COST PRODUCTION DRYING

Write us about your drying problem. Arrange with us for test runs on your material at our Poughkeepsie plant.

INSTANT DRYING CORPORATION
101 Park Avenue, New York 17, N.Y.
Engineering by CLARK, MacMULLEN & RILEY, INC., N.Y.

Testing & Research Laboratories at Poughkeepsie, N.Y.

When inquiring check CP 7321 on handy form, pgs. 2-3

**FAST-HEATING, VERSATILE
TEMCO HOT PLATES...**

**NEW DESIGN...
for evaporations,
boiling and general
controlled heating**

Latest engineering advances embodied in this TEMCO design lets you perform your work more efficiently, gives you extra economy of operation. Cast aluminum top plate heats to 500°F. in 30 minutes. Temperature range 140°F. to 850°F. Built-in Temcometer provides precise temperature control. Clean-cut modern stainless steel body is resistant to chemicals, easy to keep clean. Controls especially ventilated for cool operation and control panel recessed for protection against damage. Two compact sizes: 12" x 12" and 12" x 24", both 7" high. Write for bulletin H-1 and dealer's name.

THERMO ELECTRIC MANUFACTURING CO.
476 Huff St., Dubuque, Iowa.

When inquiring check CP 7322 on handy form, pgs. 2-3

CHEMICAL SHOW PREVIEW

(Continued from preceding page)

dryer has flash drying characteristics tending to aid retention of aromas and flavors in some applications.

General Electric Co., Pittsfield, Mass.

COATING INTERMEDIATE

Designated as R-108, the intermediate combines acid and alkali resistance with toughness, flexibility, adhesion and heat resistance. Preparation of coatings with R-108 requires relatively simple mixing operations.

SILICONES

Available in the form of rubber compounds, fluids, greases and resins, these silicones possess resistance to temperatures as high as 550°F and as low as -120°F. Unusual surface properties are exemplified in such applications as anti-foam agents, water repellent materials and heat-resistant adhesives.

General Laboratory Supply Co., Paterson 3, N.J.

LABORATORY APPARATUS

A general line of laboratory apparatus will be displayed by this manufacturer.

Great Western Manufacturing Co., Leavenworth, Kan.

GYRATORY SIFTING & SCREENING MACHINES

Unbalancing wheel imparts a gyratory motion to these machines which find application in sifting and screening of dry, liquid and semi-liquid materials. The motion gives a circle of revolution from $\frac{3}{8}$ to $2\frac{1}{4}$ " on various machines.

The Grief Bros. Cooperage Corp., Lindenhurst, N.Y.

DRUMS & BARRELS

Fiber, plywood and steel drums and wooden barrels will be displayed, which in a variety of sizes find application for the bulk packaging of dry, semi-liquid and liquid products. Steel drums, for example, are available in sizes from $3\frac{1}{2}$ to 57 gal and in gauges from 22 to 30.

Grinnell Company, Inc., Providence 1, R.I.

DIAPHRAGM VALVES

Diaphragm valves with diaphragms manufactured from a thermoplastic material which possesses high degree of chemical inertness. Performance reports show resistance to attack by chlorinated aliphatic and aromatic compounds, concentrated nitric and sulfuric acids and most solvents which attack rubber.

B. F. Gump Co., Chicago 50, Ill.

PROCESSING EQUIPMENT

Manufacturer's products to be seen include: net weighers, featuring automatic operation and controlled discharge;

**CORROSION
RESISTANT**

**NORDCO
Bronze Valves**

to handle
SULPHURIC ACID
(Dilute)

A dependable valve with pressure lubricated plug to handle dilute sulphuric acid, hot or cold, and many organic reagents. 88% copper, 10% tin, 2% lead. 300-lb WOG —150-lb SWP. Sizes — $\frac{1}{2}$ " to 4".

Fig. 614—Screwed ends
Fig. 615—Flanged ends
Ask for prices.

ROCKWELL MANUFACTURING COMPANY
400 N. Lexington Ave., Pittsburgh 8, Pa.

NORDSTROM

**AUTOMATICALLY LUBRICATED
VALVES**

When inquiring check CP 7323 on handy form, pgs. 2-3

AUTOMATIC RESPONSE TO VARIABLE TEMPERATURE

AUTOMATIC RESPONSE TO VARIABLE pH

AUTOMATIC RESPONSE TO VARIABLE LIQUID LEVEL

AUTOMATIC RESPONSE TO VARIABLE PRESSURE

AUTOMATIC RESPONSE TO VARIABLE FLOW

**FOR
METERED
PUMPING**

in Automatic Response

TO VARIABLE PROCESS DEMAND

WRITE for complete description and specifications.
Lapp Insulator Co., Inc., Process Equipment
Division, 459 Maple St., LeRoy, N.Y.

**Lapp Auto-Pneumatic
PULSAFEEDER**

PISTON-DIAPHRAGM CHEMICAL PROPORTIONING PUMP

When inquiring check CP 7324 on handy form, pgs. 2-3

CHEMICAL SHOW PREVIEW

feeders for proportioning of dry products; Bar-Nun rotary sifter; bucket elevator and Vibrox barrel packer.

Hasco Valve and Machine Co., Wauwatosa 13, Wis.

VALVES & FITTINGS

Globe, gate, angle, butterfly and check regulating valves. Single and double seated pneumatic and electrically operated control valves are fabricated from stainless steel, nickel, monel and Hastelloy.

Heil Process Equipment Corp., Cleveland 11, Ohio

PROCESSING EQUIPMENT

This manufacturer will exhibit corrosion resistant pipe, acid heating and cooling units, acid-proof steam jet agitators and lined process tanks.

Hercules Filter Corp., Paterson 3, N.J.

LEAF FILTERS

A complete line of manufacturer's filters including: Hercules manually cleaned pressure leaf filters, Hercules self-cleaning rotating leaf filters, Hercules sheet filters, laboratory and pharmaceutical filters and filtering materials such as preformed asbestos pads and asbestos and wood pulp in loose form. Sizes of pressure leaf models range from 10 to 1000 sq ft and a wide selection of non-corrosive metals and coatings are available.

Hetherington & Berner Inc., Indianapolis 7, Ind.

FLUIDOMETER SYSTEM

A working model of a control system for metering of fluids along with jacketed pumps and pipe and fittings. The system consists of three main units: a control head, a meter of suitable size and type, and an automatic valve operated by the control head.

Hills-McCanna Co., Chicago 18, Ill.

METERING PUMPS & VALVE

Two types of metering and proportioning pumps: first with hydraulic drive is particularly applicable to handling of boiler feed water problems and pressures to 30,000 psi; second is a small capacity pump suitable for pilot plant and laboratory work. Diaphragm valve offers bonnet assembly and operating cylinder integrally cast with attendant low headroom requirement. On the valve, a standard on-off service with throttling and positioning control is available.

F. R. Hormann & Co., Inc., Newark 4, N.J.

FILTERS

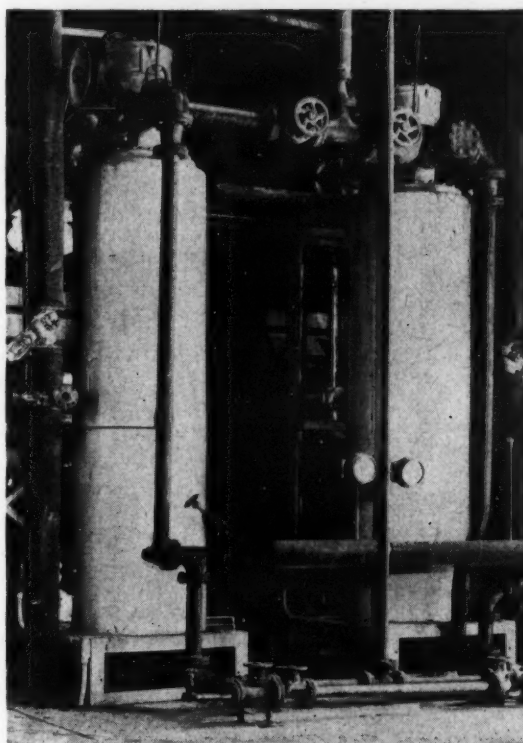
Food and pharmaceutical liquid polishing and sterilizing filters in 8", 13½" and 16" sq sizes. Fabricated from plate and bar stock.

(Continued on next page)

Votator

PROCESS NEWS

- CONTROLLING HEAT OF REACTION... reaction time and temperature
- HEATING OR COOLING automatically controlled
- CRYSTALLIZING



Heavy duty VOTATOR Heat Transfer Units
for the chemical field.

VOTATOR—T. M. Reg. U. S. Pat. Off.

VOTATOR Heat Transfer Apparatus can be used to control the heat of reactions in the manufacture of phenolic and formaldehyde resins, the polymerization of linseed oil, esterification of rosin.

This equipment maintains absolute and precise control over the variables of time and temperature—automatically. Desired reaction temperatures are reached swiftly, eliminating undesirable side reactions. Air or other gases can be metered and introduced continuously into materials passing through the unit.

VOTATOR Heat Transfer Apparatus provides continuous, closed system operation. This results in greater uniformity and substantial labor savings, since less handling and supervision is required. The operation is completed in a matter of seconds, thus remarkable volume can be attained in a small space.

Temperatures which can be maintained range from a low of -150°F to a high of 700°F. Rates of throughput for liquid or viscous materials range to 20,000 and 30,000 pounds per hour.

In addition to controlling heat of reactions, VOTATOR Heat Transfer Apparatus can be used for crystallizing, heating, or cooling. Girdler's complete service includes process engineering and design, manufacture of equipment, and installation. Put our experience to work on *your* problems.

WRITE FOR NEW BULLETIN

This new bulletin describes the function and application of VOTATOR Heat Transfer Apparatus in the chemical industry. For your free copy write The Girdler Corporation, Votator Division, Louisville 1, Ky.



THE **GIRDLER** CORPORATION
Votator Division

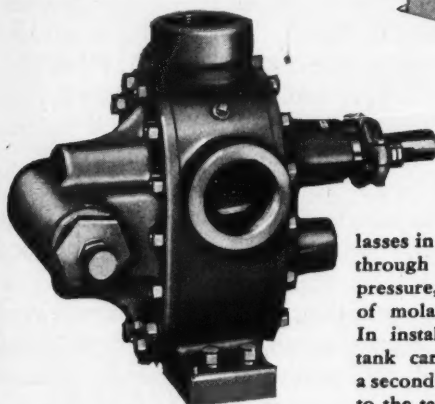
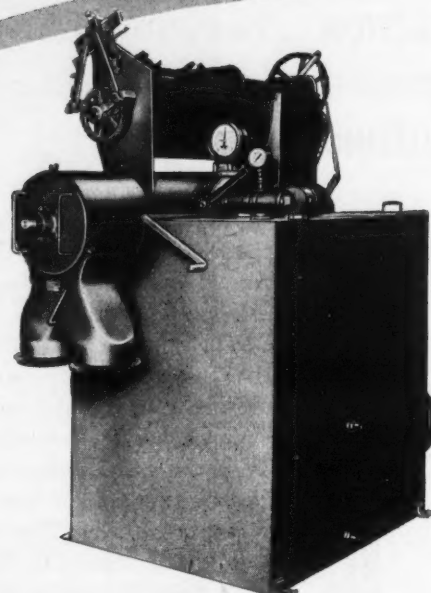
When inquiring check CP 7325 on handy form, pgs. 2-3

ROPER Rotary PUMPS

**KEEP THICK, GOOEY
MOLASSES MOVING IN...**

WENGER FEED MIXERS

This unit, manufactured by Wenger Mixer Co., Sabetha, Kansas, is a compact, simply constructed mixer which blends thick, sticky, molasses with ground feed or hay. The tank holds 5100 lbs. of molasses. Capacity of mixer, 8,000 to 12,000 lbs. per hour, based on a mixture of 25% to 50% molasses.



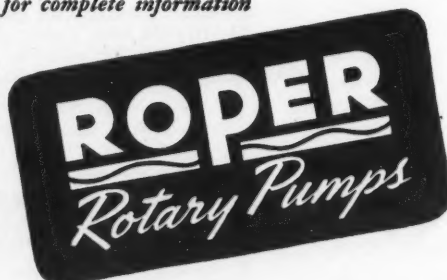
A Roper 3600 Series Rotary Pump installed as standard equipment by Wenger is completely submerged in thick molasses when the mixer tank is full. Every 12 minutes molasses in the tank is completely circulated through this pump and by-pass under pressure, thus breaking down consistency of molasses to assure a better blend. In installations where a large tank or tank car is used for molasses storage, a second Roper serves to transfer molasses to the tank of the mixer.

This pump application is but one of many unusual installations... another tough job licked by Roper. Before you select a pump for either new installations or for replacement, investigate the Roper 3600 Series. Pressures to 60 p.s.i. — 40 to 200 g.p.m. sizes.

Write for complete information



GEO. D. ROPER CORP.
750 Blackhawk Park Ave.
ROCKFORD, ILLINOIS



When inquiring check CP 7326 on handy form, pgs. 2-3

CHEMICAL SHOW PREVIEW

(Continued from preceding page)

The Frank G. Hough Co., Libertyville, Ill.

SHOVEL TRACTOR

Long boom arms to give high lift, rear wheel steering for maximum maneuverability and high compression engine are some of the features of the model HAH tractor and shovel for bulk material handling. Unit can scoop up a ton of materials and carry it quickly over floors or ground, through narrow aisles and up ramps. Precise hydraulic dump control deposits the loads at any height up to 91 inches.

Illinois Testing Labs, Inc., Chicago 10, Ill.

CONTROL INSTRUMENTS

Instruments to be exhibited include pyrometers, velometers and dew point indicators.

Illinois Water Treatment Co., Rockford, Ill.

WATER TREATMENT EQUIPMENT

Equipment for the treatment of water and other aqueous solutions.

Industrial Instruments, Inc., 17 Pollock Ave., Jersey City, N.J.

ELECTROLYTIC INSTRUMENTS

Instruments will include electrolytic conductivity cells, armored cells for sulfuric acid measurement, and the solubridge controller-indicator. The latter gives momentary readings at process step without disturbing controller settings.

Ingersoll-Rand Co., New York 4, N.Y.

PROCESSING EQUIPMENT

Several working models of products including one of a steam jet vacuum refrigeration unit. In addition, air and gas compressors, air and electric tools, centrifugal pumps, turbo blowers and vacuum equipment such as condensers and ejectors.

Jabsco Pump Company, Burbank, Calif.

PUMPS

Bronze, cast iron and stainless steel pumps featuring a rotary rubber impeller. Pumps handle a variety of liquids and slurries at a wide range of speeds. There is no metal-to-metal contact of moving parts and the units are self priming. Capacities up to 56 gpm are available.

Jeffrey Manufacturing Co., Columbus 16, Ohio

DRYER

Direct heat dryer uses vibration to convey material over stainless steel screen panel surface. Air is passed up through conveying surface and bed of material

**Bin
Stuck
Lately
With
Sticky
Chemicals**

?

A CLEVELAND Air Vibrator will go into action and settle the whole matter fast for you.

Write for our catalog

P.S. Don't forget to tell us your problem.



2706 Clinton Ave. • Cleveland 13, Ohio

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CHEMICAL PROCESSING

CHEMICAL SHOW PREVIEW

to accomplish low capacity drying or cooling on a continuous basis. Applicable to granular materials, the dryer does not degrade the most sensitive materials.

FEEDER

Waytrol feeder is designed for the precision gravimetric and continuous proportioning feeding at a capacity rate from 2 to 60 lb per hr. Control is photoelectric and unit is suitable for granular materials such as plastics and reagents.

Jerguson Gage Valve Co., Somerville 45, Mass.

LEVEL INDICATOR

Reporting an accuracy of $\frac{1}{2}$ of 1% of scale reading, the Jerguson miniature size level indicator is particularly applicable to graphic panel work.

Kern Company, New York 38, N.Y.

ELECTROPHORESIS APPARATUS

Micro-electrophoresis apparatus is designed for the quantitative analysis of small amounts of complex solutions containing high molecular weight substances. Analysis takes $1\frac{1}{2}$ hr and operation by untrained personnel is possible after briefing.

POLARIMETER

Featuring a tripartite field of vision and full circle scale, the polarimeter finds use for the determination of sugars and other optically active substances. For small rotations, white light is suitable, while greater rotations are determined under sodium light.

Kewaunee Mfg. Co., Adrian, Mich.

EXHAUST HOOD

Feature will be the company's 3602 hood which was designed in cooperation with scientists at Oak Ridge for radioisotope work. This hood is particularly suitable for use in industrial, hospital and educational institutions.

Winney Manufacturing Co., Boston 30, Mass.

VACUUM PUMPS & VALVES

Silicone rubber gaskets and buna rubber valve disc are component parts of the valves which simplify checking the tightness of any vacuum system. Two high vacuum pumps are due for display: a small pump of high speed and with free air displacement of 2 cu ft per min; a large pump with a capacity of 1600 cu ft per min.

Hold-Hold Manufacturing Co., Lansing 4, Mich.

HEAT EXCHANGE PLATES

Various construction materials will be demonstrated in Platecoils which are embossed metal sheets of 16 gauge
(Continued on next page)

There's No Other Welding Tee Like This!



FLOWLINE

TRADE MARK
STAINLESS STEEL, MONEL, NICKEL and INCONEL WELDING FITTINGS
Preferred for Dependable Corrosion Service

The Welding Fittings organization — recognizing the superiority of welded piping for corrosion service—was the first to standardize, manufacture, and stock a complete line of stainless steel welding fittings.

The tee shown above—typical of all FLOWLINE Welding Fittings—provides unique features that have been developed through long, intensive specialization in design and production of welding fittings for corrosion service.

FLOWLINE fittings—tees, ells, reducers, stub ends, and caps—are available in sizes $\frac{1}{2}$ " through 12", and in various pipe schedules.

WELDING FITTINGS CORP.

NEW CASTLE, PENNSYLVANIA

World's Largest Manufacturer of Stainless Welding Fittings

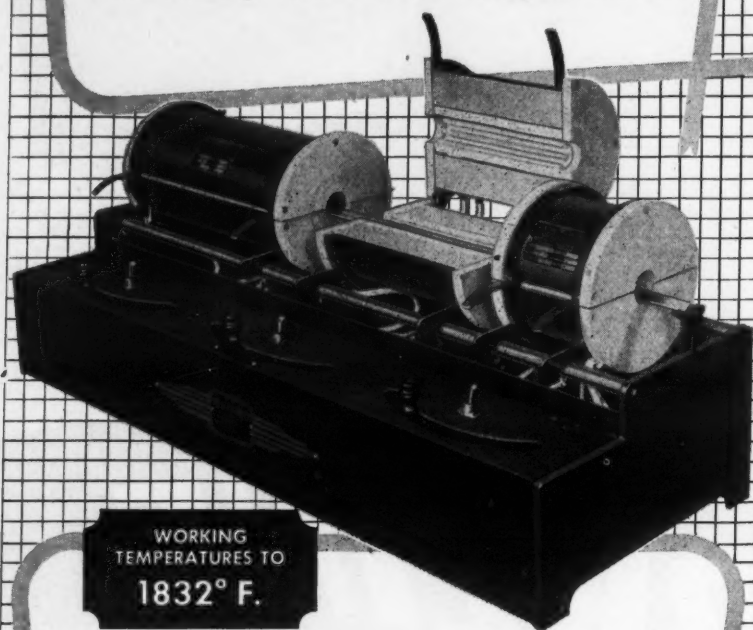
Features of FLOWLINE Tees

- Cold formed — seamless — by the exclusive Welding Fittings process.
- Reinforced crutch — tee is stronger than pipe with which it is used.
- Full center to face dimensions.
- Smooth interior walls.
- Ends machine tool cut and finished.
- Annealed, cleaned bright, passivated.
- Heat number permanently stamped on each tee as record of actual analysis and physical properties.
- Every tee is marked with type of metal, size, schedule, wall thickness, and FLOWLINE trade mark.

When inquiring check CP 7328 on handy form, pgs. 2-3

MULTIPLE UNIT Organic COMBUSTION FURNACE

for processes requiring precise and easily controlled temperatures



WORKING
TEMPERATURES TO
1832° F.

Each Section is a separately controlled, split tube type unit

Hevi Duty Organic Combustion Furnaces are used in modern laboratories for combustion processes such as carbon determination of organic materials, low and high temperature distillation of oil shales, oil sand, coke, coal, and asphalt materials. Each movable section may be used independently of the others. See your Laboratory Supply Dealer or

Write For Bulletin HD-735

HEVI DUTY ELECTRIC COMPANY

HEAT TREATING FURNACES **HEVI DUTY** ELECTRIC EXCLUSIVELY
DRY TYPE TRANSFORMERS — CONSTANT CURRENT REGULATORS
MILWAUKEE 1, WISCONSIN

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CHEMICAL SHOW PREVIEW

(Continued from preceding page)

metal, seam and spot welded to form compact units through which can be circulated the required heating or cooling media under pressure.

The Lakso Co., Inc., Fitchburg, Mass.

TABLET COUNTER

Bench type machine weighing 85 lb for counting and filling tablets and two-piece gelatin capsules.

Lawrence Machine & Pump Corp., Lawrence, Mass.

LIQUID CHLORINE PUMP

Self-priming pump, lined slurry pump and large photo of liquid chlorine pump.

Lebanon Steel Foundry, Lebanon, Pa.

CORROSION RESISTANT CASTINGS

A diversification of design and materials in stainless, corrosion and heat resistant castings. In particular, centrifugal castings of various alloys in metal molds, and static sand castings for pressure and non-pressure applications.

Leslie Co., Lyndhurst, N.J.

DOUBLE-SEATED VALVES

A line of double seated diaphragm regulating valves and controllers for regulating the flow of fluids in response to instrument requirements.

The Luzerne Rubber Co., Trenton 7, N.J.

STANDARD HARD RUBBER PRODUCTS

Pipe, fittings, sheet, rod, tube, buckets, etc. are the products to be displayed. Applications include: handling of corrosive solutions, electrical insulation, and medical and surgical instruments.

MRM Company, Inc., Brooklyn 11, N.Y.

LABELING MACHINE

Occupying a floor space approximately 3' x 7'6", this machine has a capacity of 75 to 150 units per minute. Continuous motion design eliminates start and stop motions and the machine requires no operators. It will function in conjunction with any semi-automatic or fully automatic packaging line. Motor and vacuum pump are fully enclosed.

E. Machlett & Son, New York 10, N.Y.

STATIC ELIMINATOR

This device eliminates static charges from microtomes, analytical balances and other laboratory equipment. An alpha radiating static eliminator is mounted into

With DESCO
You Stock Only

HALF
HALF as many
Plug Valve
Lubricants

Only 4 DESCO Standard Service Lubricants are needed to service all the plug valve around the average plant. For those unusual cases there are 3 DESCO Special Lubricants. With DESCO Lubricants you not only reduce your investment in lubricants but materially reduce the hazard of using the incorrect lubricant.

DESCO Lubricants are packed in bulk and in convenient, individual sticks in 6 sizes 12 to 24 sticks to a carton, 6 cartons in a case. Write for catalog 14-0.



DELTA-DESCO Plug Valve Lubrication SYSTEM

The DELTA-DESCO System combines the Delta High Pressure Gun, Adapter Fittings (or Automatic Lubricator), Specialized Lubricants, and Engineering Service. With it an operator can lubricate 10 to 15 valves in the time usually required to lubricate one — and do the job better!



DELTA Automatic Plug Valve LUBRICATOR

A simple device, automatically lubricates valve each time it is opened and closed. Write for Lubricator Catalog 15-0.

The Only Complete
Plug Valve
Lubrication
Company

2.



DELTA
ENGINEERING SALES CO.

P.O. Box 678

SHREVEPORT, LOUISIANA, U.S.A.

Sales Offices in All Principal Cities

When inquiring check CP 7330
on handy form, pgs. 2-3

CHEMICAL PROCESSING

CHEMICAL SHOW PREVIEW

a head piece which is directed toward the areas to be neutralized. Irradiating the air with alpha particles, the static eliminator ionizes the air thereby discharging static charges from nearby surfaces. The alpha particles are harmless as they are incapable of penetrating more than 1.6" of air or cigarette paper.

TUBING GAUGES

One, a precision, micrometer-type tubing gauge permits inside measurements from .01 to 5 mm. Especially designed for glass tubing, the gauge can also be used for heavy wall metal tubing having a bore up to 5 mm. The other, also for glass, is engraved with a scale graduated in 0.1 mm. It permits direct inside measurements from 1 to 15 mm.

Marsh Stencil Machine Co., Belleville, Ill.

DIAL-TAPER

Gummed tape machine with telephone type of dial that displaces manual with automatic operation. Weighing 50 lb, the machine measures 21" long, 9" wide and 10" high. In operation, the length of tape desired is selected on the dial, and the machine dispenses the tape, accurately measured, cut off clean and moistened with warm water. Accommodates 1 to 3" wide rolls of tape and up to 9" in diameter.

the Martindale Electric Co., Cleveland 7, Ohio

MICA UNDERCUTTER

Electrically driven machine to undercut mica between commutator bars of electric motors and generators as part of regular maintenance program. Three interchangeable cutting heads using saws from $\frac{3}{8}$ " to $1\frac{1}{8}$ " diameter are available to handle all sizes of industrial commutators. Heads are furnished with guides to help the operator do a precise job in a minimum of time.

the Matheson Co., Inc., East Rutherford, N.J.

TEXAS NATURAL GAS

Texas natural gas compressed in cylinders for use in the design and testing of gas appliances in those areas where natural gas is not yet available. Offers relative economy compared to gas which has to be prepared especially for the purpose mentioned. Analysis shows concentrations of:

Methane	93.66 mol per cent
Carbon Dioxide	0.90
Nitrogen	0.47
Ethane	3.56
Isobutane	0.12
n-Butane	0.15
C ₅ & Higher Hydrocarbons	0.20

Specific gravity of this material @60°F is approximately 0.602; the Btu value per cu ft @60°F is 1036. A small concentration of mercaptan sulfur is added for purposes of safety in case of leakage.

(Continued on next page)

ANNOUNCING the NEW Anderson Hi-eF Purifiers

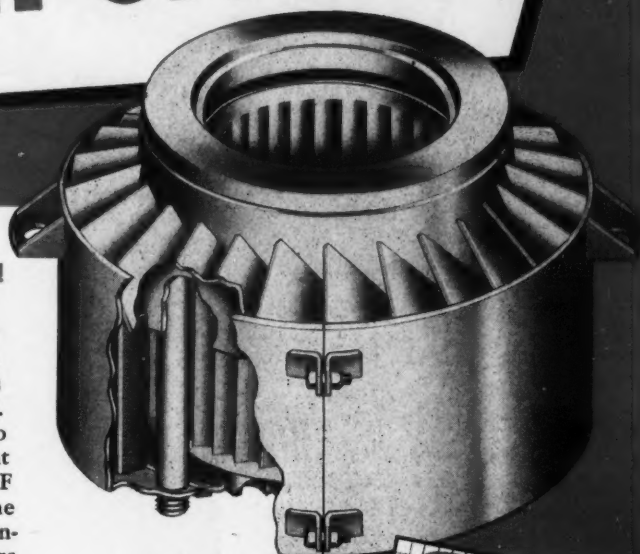
DELIVERS VIRTUALLY 100% QUALITY VAPOR!

Now, the V. D. Anderson Company, makers of Super-Silvertop Steam Traps, offers you a complete line of new Anderson Hi-eF Purifiers—the finest separating devices ever developed. These high efficiency units are guaranteed to remove virtually 100% of the entrainment from vapors—even at extreme velocities! Hi-eF Purifiers quickly amortize themselves. The internal-type Purifier illustrated here, for instance, produces clean steam from boilers, thereby increasing the life span of reciprocating engines, turbines, and super heater tubes. In evaporator operation, they boost production and in food and petroleum processing, assure a better, purer product.

Install Anderson Hi-eF Purifiers and forget them . . . they are self cleaning . . . without baffles or any moving parts. Good fluid dynamic design permits extremely low pressure drop.

Anderson Hi-eF Purifiers give you purifier efficiency at the price of an ordinary separator! Save by investigating these new, money saving units today. Anderson makes complete range of types in all sizes to any specifications.

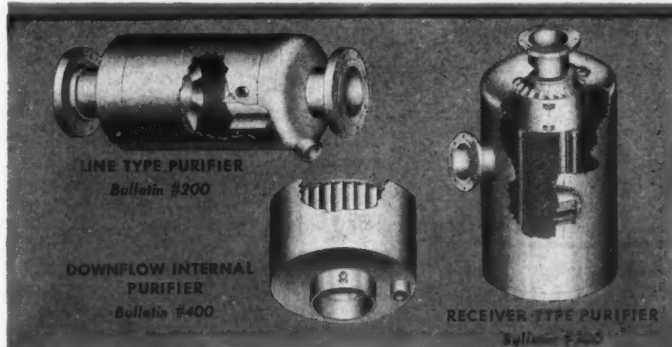
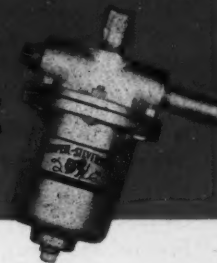
Mail coupon for further information today.



INTERNAL TYPE
PURIFIER
Bulletin #100



MADE BY THE MAKERS OF
SUPER-SILVERTOP STEAM
TRAPS AND STRAINERS



LINE TYPE PURIFIER
Bulletin #200

DOWNFLOW INTERNAL
PURIFIER
Bulletin #400

RECEIVER TYPE PURIFIER
Bulletin #300

PURIFIER DIVISION, THE V. D. ANDERSON COMPANY 1959 West 96th Street • Cleveland 2, Ohio

Gentlemen: Please send additional information on Anderson Hi-eF Purifiers described in:

- ☐ Bulletin #100 ☐ Bulletin #300
☐ Bulletin #200 ☐ Bulletin #400

Name _____

Company _____

Address _____

City _____ Zone _____ State _____

When inquiring check CP 7331 on handy form, pgs. 2-3

- Vacuum and Pressure Filter Element Covers
- Dust Collector Tubes, Bags and Envelopes
- Anode Bags

Let US make up your
Element Coverings
from NFM Filter Media

NFM Filter Media are woven from Nylon, Orlon*, Vinyon N**, Saran, Glass and Cotton. This wide range insures your obtaining the type of element covering having the greatest degree of chemical resistance and best general all round performance for your particular operation.

NFM element coverings are accurately and durably fabricated by skilled personnel at both our New Haven and Salt Lake plants. Experience has demonstrated that filter cloth costs are at a minimum and filter performance at a maximum wherever NFM products are employed.

If you are not absolutely certain as to which type of synthetic or natural fiber is best for your use send us a complete description of your operating conditions and we'll be glad to make a recommendation. Our many years of experience mean that we have quite a fund of knowledge always at your disposal.

*TM-UCC

**TM-E. I. Du Pont de Nemours & Co., Inc.



Weavers of Industrial Filter Media for over Forty Years

General Offices & Mills: New Haven 14, Conn.
Western Office & Factory: Salt Lake City 1, Utah

Sales Offices—Representatives

Chicago, Ill. Cincinnati, Ohio Houston, Texas Oslo, Norway Johannesburg, South Africa
2627 West 19th St. Roselawn Center Bldg. 1406 Second National Bank Bldg. Nicolai Friis Edward L. Bateman

When inquiring check CP 7332 on handy form, pgs. 2-3

CHEMICAL SHOW PREVIEW

(Continued from preceding page)

Merco Centrifugal Co., San Francisco 11, Calif.

CENTRIFUGE

In simulated operation to demonstrate its separating characteristics will be a Merco B-9 pilot plant size centrifuge. Concentrating and washing solids, particle size classification and liquor clarification are some of uses to which these separators can be put.

The Meriam Instrument Co., Cleveland 2, Ohio

GAUGES & FLOW METERS

Among the products which this manufacturer will show are manometers, mercury pressure gauges, incline gauges, flow meters and absolute gauges.

Metalab Equipment Corp., Hicksville, L.I., N.Y.

FUME HOOD

A fume hood for laboratories handling radioactive isotopes with supplementary air supply and remote control utilities. Also possesses general fume hood applications.

Micro Metallic Corp., Glen Cove, N.Y.

STAINLESS STEEL FILTER ELEMENTS

Clarification and solids collection filters in the 1½ to 4" pipe size range incorporating porous stainless steel filter elements.

Milton Roy Co., Philadelphia 18, Pa.

HYDROSTATIC PRESSURE GENERATOR

An air operated controlled volume pump capable of maintaining 25,000 psi using only 80 psi of plant air. Used for testing boilers, pressure vessels, etc., the pump will develop and maintain the desired pressure and then automatically shut off. Any leaks in the equipment being tested will cause the pressure to drop, and the pump will begin intermittent operation.

MINIATURE PUMP

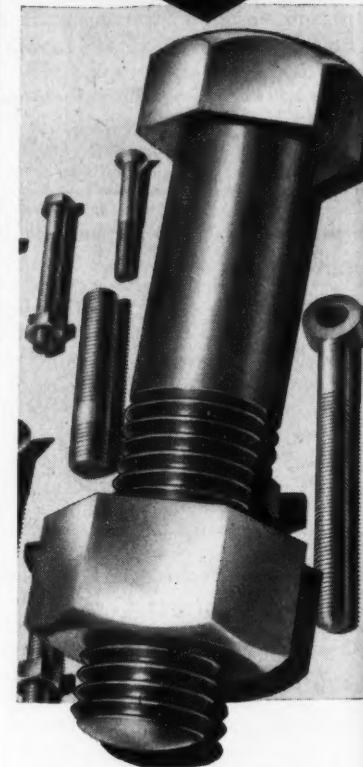
Designated as the "miniPump", this metering pump will deliver from 3 to 3200 cc per hr at normal pressures to 250 psi. On display will be both motor driven and air powered models of this pump which has found application in pilot plants, laboratories and processes requiring exact and reproducible small quantities of chemicals or solutions.

Mine Safety Appliances Co., Pittsburgh 8, Pa.

RESPIRATOR

Feature will be the MSA Pneolator, a development in automatic artificial respiration instruments. In addition, a complete line of gas masks and oxygen breathing apparatus, including a product which generates its oxygen from the contents of a replaceable

First for
**BOLTS
NUTS
STUDS**

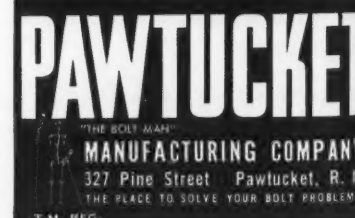


- ★ Carbon Steel
- ★ Heat-treated Alloy Steels
- ★ Stainless Steel
- ★ Silicon Bronze
- ★ Naval Brass
- ★ Monel Metal

You can count on a uniform Class 3 Fit when you buy Pawtucket threaded fasteners. Accurately made in standard dimensions — or to your specifications.

BETTER BOLTS SINCE 1882

Use Headed and Threaded Fasteners for Economy and Reliability



When inquiring check CP 7333 on handy form, pgs. 2-3

CHEMICAL PROCESSING

CHEMICAL SHOW PREVIEW

chemical canister. Detectors of toxic and combustible gases, ranging from light, portable instruments, to custom-made panels will be shown.

Minneapolis-Honeywell Regulator Co., Philadelphia 44, Pa., Brown Instruments Division

DIFFERENTIAL CONVERTER

A compact, mercuryless unit which converts differential pressure into a proportionate output air pressure as a measurement of flow.

DUPLEX RECORDER

Simultaneously records two independent variables on one chart.

FUNCTION PLOTTER

Automatically plots a curve showing the continuous relationship of two variables as a function of each other.

LINEAR ELECTRIC FLOW METER

Linear electric flow meter body and flow receiver with electronic integration.

TEL-O-SET RECORDERS, INDICATORS & CONTROLLERS

Compact instruments designed especially for use on graphic panels.

VALVE PRODUCTS

Variety of industrial type valves and similar products.

Mixing Equipment Co., Inc., Rochester 11, N.Y.

FLUID MIXING MACHINERY

Specifically designed for all fluid mixing operations is a line including portable mixers for open tanks; top entering mixers for both open and closed tanks; and side entering mixers. Available in sizes to 500 hp and in a variety of alloys.

Monsanto Chemical Co., St. Louis 4, Mo.

PRODUCT APPLICATIONS

Display will illustrate applications of some 75 of the manufacturer's more than 400 products. The products and applications will be dramatized in an audience participation program.

National Engineering Co., Chicago 6, Ill.
Simpson Mix-Muller Div.

MULLER TYPE MIXERS

Three of the ten available models of mixers will be shown in operation. Employing the muller principle of mixing, this equipment is applicable to mixing dry, semi-dry and pasty materials and use as a reaction vessel. Can mix under vacuum and pressure and is adaptable to continuous processes.

(Continued on next page)

A STEAM TRAP

CASTS A MIGHTY BIG SHADOW!



- **LOAD ON BOILER CUT BY 75 HP** by trapping with Armstrongs, says Chief Engineer of large midwestern hospital.
- **30°-40° TEMPERATURE INCREASE** on 8-roll ironer after unit trapping with Armstrongs, reports large eastern laundry.
- **STARCH DRYER HEAT-UP TIME CUT 2-3 HOURS** after retrapping with Armstrongs, says Canadian plant engineer.
- **125 HP BOILER NOT NEEDED** — 80 HP boiler does the job since Armstrong traps were installed in a chemical plant in Iowa.
- **50% SAVINGS IN TRAP MAINTENANCE LABOR COSTS** since installing Armstrongs at midwest agriculture machinery plant.
- **COOKING KETTLE OUTPUT SPEEDED UP 30%** by Armstrong unit trapping at large canning plant.

... **BIG EFFECTS** from little traps! The "shadow" cast by a steam trap is multiplied in size by the number of traps in your plant until it grows to be a giant that you can't shrug off. Let your nearby Armstrong Representative show you how Armstrong Trapping can cut *your* fuel, production and maintenance costs. Call him today.

Write for **STEAM TRAP BOOK** —
36 pages of useful, how-to-do-it data. Free on request.



ARMSTRONG MACHINE WORKS 880 Maple Street, Three Rivers, Michigan

ARMSTRONG STEAM TRAPS

When inquiring check CP 7334 on handy form, pgs. 2-3

for
• SPRAYING • WASHING • RINSING • COOLING • AIR
CONDITIONING

Get the most out of your Spraying Equipment with minimum power... with efficient spraying.

Use Yarway Nozzles. No internal vanes or other restrictions to clog or hinder flow. Two types—Yarway Involute-type producing a fine hollow spray with minimum energy loss, and Yarway Fan-type producing a flat fan-shaped spray with time-saving slicing action for cleaning.

Wide range of standard sizes and capacities. Cast or machined from solid bar stock.

Thousands in use. Write for Bulletin N-616.

YARWAY SPRAY NOZZLES

YARNALL-WARING COMPANY

12: Mermaid Avenue, Philadelphia 18, Pa.



When inquiring check CP 7335 on handy form, pgs. 2-3

The Pump that Deep Cuts Cost of Operation and Maintenance



SHRIVER DIAPHRAGM PUMP

- No Stuffing Box
- No Leakage
- No Wear on Working Parts

In this pump the fluid being pumped is kept from the mechanical parts by rugged diaphragms, thereby avoiding contamination and wear. Only the liquid handling ends need be made of the required metal or rubber-covered for protection. Pump operation is positive and easy; cleaning—easy; maintenance—negligible. Delivery pressures—to 100 p.s.i. Capacity—1 to 100 g.p.m. Write for Bulletin 126.

T. SHRIVER & COMPANY, Inc.

846 Hamilton

Harrison, N. J.

When inquiring check CP 7336 on handy form, pgs. 2-3

CHEMICAL SHOW PREVIEW

(Continued from preceding page)

New England Tank & Tower Co., Everett 49, Mass.

AGITATOR DRIVES & STIRRERS

Various drives and stirrers representative of the complete line will be shown and a production size unit in operation with a variable speed device will demonstrate visually the company's principle of agitation. Also, a continuous "in the line" mixer designed to be installed in a pipe line to obtain mechanical mixing of liquids in a process.

New Jersey Machine Corp., Hoboken, N.J.

LABELING MACHINES

This company will exhibit high speed labeling machinery that operates without glue. The labels used are printed on a thermoplastic paper which becomes sticky when heated. Model 160 applies labels to containers at a rate of 350/min and is fully automatic. Another model, 86T0, is semi-automatic in operation. Applications include bottles, boxes, vials and containers of all types.

Newark Wire Cloth Co., Newark 4, N.J.

WIRE FABRICATIONS

Industrial wire cloth, fabricated strainers, testing sieves and testing sieve shaker for use in straining, filtering operations or determining particle size.

Niagra Blower Co., New York 17, N.Y.

AFTER COOLER

Niagra Aero After Cooler removes moisture from compressed air or gas by cooling to temperatures below the surrounding atmosphere. By using evaporative cooling, the equipment effects a savings in cooling water consumption.

HEAT EXCHANGER

This equipment finds application in the precise cooling and temperature control of liquid chemicals or gases, condensing vapors or cooling the reflux in distillation columns.

HIGH PRESSURE STEAM HEATER

It is stated that design enables unit to make use of all the sensible and latent heat in high pressure steam and to return the condensate to the boiler without using hot-wells or pressure reducing stations. This is accomplished by employing a dual coil system by which the high pressure condensate is permitted to flash into vapor which is condensed at atmospheric pressure.

Niagra Filter Corp., Buffalo 14, N.Y.

HORIZONTAL LEAF FILTER

Suitable for filtration of influent materials containing a high percentage of solids, the Niagra Style "H"



If you walk on it

it calls for OPEN STEEL FLOORING

If you are planning a new building, or modernizing of old walking surfaces indoors or out, look into the advantages of open steel flooring... the versatile flooring... now! New catalog illustrates and describes wide range of modern applications, its safety features, strength, simplicity of installation and maintenance. Send for a copy.



NEW FREE IDEA-BOOK

Write today

OPEN
STEEL FLOORING
INSTITUTE, Inc.
2311 G First National
Bank Building
Pittsburgh 22, Pa.



MEMBERS

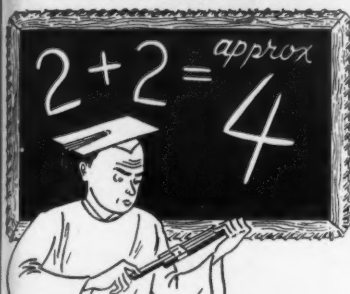
These Manufacturers assure top quality engineered grating.

- BORDEN METAL PRODUCTS CO. Elizabeth, N.J.
- HENDRICK MANUFACTURING CO. Carbondale, Pa.
- IRVING SUBWAY GRATING CO., INC. Long Island City, N.Y.
- STANDARD STEEL SPRING CO. Gary, Indiana
- WALTER BATES COMPANY, INC. Joliet, Illinois
- THE TRI-LOK COMPANY Pittsburgh, Pa.
- BLAW-KNOX COMPANY Pittsburgh, Pa.

When inquiring check CP 7337 on handy form, pgs. 2-3

CHEMICAL PROCESSING

TRAINED MEN ARE SCARCE!



Are You Sending a MAN on a Boy's Errand?

Technically-trained men are getting scarcer. Yet many concerns are tying up their engineers and chemists on routine testing jobs where their talents are not most effectively used.

Why not send your routine testing to an outside laboratory? You can then assign your own trained technical men to your more urgent and unusual problems of product development, trouble-shooting, and tasks involving close familiarity with your own operations.

We are particularly adapted to handle routine problems ordinarily flowing through your laboratories. Our staffs include engineers, chemists, physicists, biologists, and specially trained technicians. Our scientific equipment is unusually extensive and includes such facilities as a radioisotope laboratory and a spectro-chemical laboratory which are, for the most part, outside the scope of the plant laboratory.

Let's get together for discussions. We are sure we can help you release your valuable technical staffs for the critical problems you are facing.

UNITED STATES TESTING COMPANY, Inc.

Established 1889
1850 Park Avenue,
HOBOKEN, NEW JERSEY
PHILADELPHIA • BOSTON • PROVIDENCE
CHICAGO • NEW YORK • LOS ANGELES
DENVER • MEMPHIS
Member of American Council of Commercial Laboratories

When inquiring check CP 7338
on handy form, pgs. 2-3

OCTOBER, 1951

CHEMICAL SHOW PREVIEW

filter features vertical all-metal leaves mounted on a retractable carriage. This arrangement is integrated with a quick-opening door which permits rapid stripping of cake from leaves. Applications cover removal of contact clays from oils, resins and varnishes; and filtration of mining solutions, carbonation sugar and any liquid where local laws prohibit discharge of industrial wastes to sewers.

Omega Machine Co., Providence 1, R.I.

GRAVIMETRIC FEEDER

Offering a capacity from a few cubic inches to a maximum of 3 cubic feet per minute, this belt gravimetric feeder handles all dry materials. Requires 6 square feet of floor space. In operation the material enters the feeder at the top either from an extension hopper, supply chute or circulating system. It then passes to the feeding mechanism where it is fed to the scale-supported moving conveyor belt. This conveyor belt delivers the material to the outlet of the feeder.

Oronite Chemical Co., San Francisco 4, Calif.

CHEMICALS

Full line of chemicals consisting mainly of detergent raw materials and intermediates, lubricating oil additives, polybutenes, para-, meta- and ortho-xylenes. In addition, several products presently in the development stage will be shown.

Owens-Illinois Glass Co., Toledo 1, Ohio Kimble Glass Div.

LABORATORY GLASSWARE

A representative line of laboratory glassware including thermometers, stoppered Nessler color comparison tubes, micro burettes and those products bearing the EXAX and NORMAX trademarks.

Owens-Illinois Glass Co., Toledo 1, Ohio

CORED FIREDOORS

For Class b and c openings and bear one-hour approval of UL. Lightweight in construction.

HEAT INSULATING PIPE COVERING & BLOCK

Resistance to moisture, strength, light weight and high insulating value characterize these materials which find application in power houses, refineries and institutional heating systems.

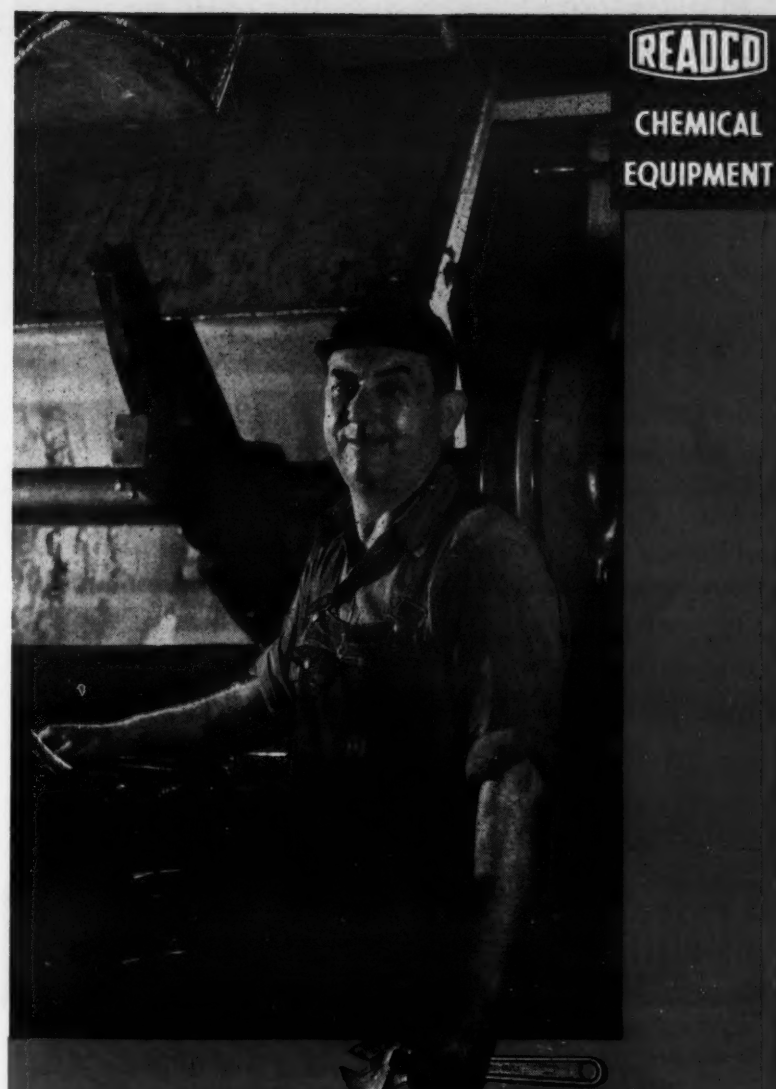
PANELS (cement-asbestos faced)

For curtain-wall construction and office or other interior partitions and available in 4' x 8', 9', and 10' panels, 2" thick.

ROOF TILE

Each tile is 2 5/8" thick by 18" wide by 36" long and

(Continued on next page)



a matter of men and machines

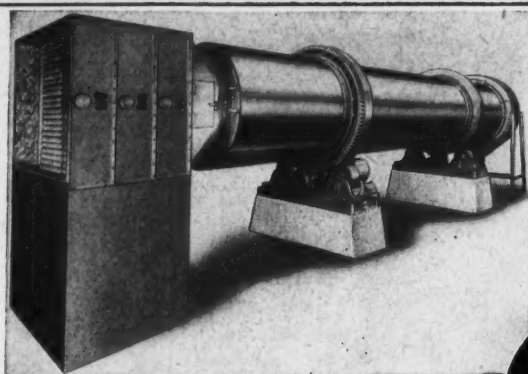
Read Standard's ability to manufacture the many complex types of equipment required by the processing industries is as much a matter of men as machines.

Its craftsmen, conscientious by habit and enthusiastic by nature, have been skilled by years of experience in building special processing equipment. Add to these skills the combined facilities of three large, modern plants and you have the basic reason why we believe that processing equipment built by Read Standard is unsurpassed anywhere in the world. Bakery • Chemical Division, YORK, PENNSYLVANIA.

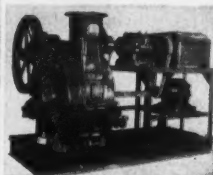
READ STANDARD

CORPORATION

When inquiring check CP 7339 on handy form, pgs. 2-3



TITLE:
CONTINUOUS PRESS



"Davenport" Rotary Hot Air Dryer

For materials or products that are critical to high temperatures, solve your drying problem with a Davenport Rotary Warm Air Dryer. Write for our complete catalog.*

*For quick reference see "Sweet's 1952 Processing Industries" file.

**DAVENPORT MACHINE
and FOUNDRY COMPANY**

Davenport 4, Iowa

DAVENPORT

De-watering Presses
and Screens.

ROTARY

Steam Tube, Hot
Air and Direct Fire
Dryers.

Water Tube and
Air Coolers.

When inquiring check CP 7340 on handy form, pgs. 2-3

DURAMETALLIC

Packings

SAVE DOLLARS

The bearing-like sealing provided by Durametallic Flexible Metallic Packing means minimum wear on rods, shafts and sleeves! Genuine maintenance savings for you in repair, replacement and shut-down costs. . . .

"Always Specify DURAMETALLIC"

WRITE FOR DURAMETALLIC
PACKING BULLETIN NO. 429 CP

DURAMETALLIC
KALAMAZOO



CORPORATION
MICHIGAN

MANUFACTURERS OF METALLIC and SEMI-METALLIC PACKINGS
ROTARY MECHANICAL SEALS and PACKING TOOLS

When inquiring check CP 7341 on handy form, pgs. 2-3

CHEMICAL SHOW PREVIEW

(Continued from preceding page)

imparts fire resistance in the construction of flat or pitched roof decks on steel sub-purlins or wooden joints.

Palmer Thermometers, Inc., Cincinnati (Norwood), Ohio

DIAL THERMOMETER

Mercury actuated Model 50-A is used for measurement of temperature in all types of liquids and air. Scale from -40 to 950°F is adjustable to any easy reading position. Case compensated for ambient temperature by invar rod principle. Guaranteed accurate within one scale division over entire range.

The Parker Appliance Co., Cleveland 12, Ohio

TUBE FITTINGS

Triple-lok tube fittings feature three-piece design including body, nut and sleeve. Available in wide range of shapes and sizes and fabricated from brass, steel, stainless steel and aluminum alloy. In addition, tube fabricating equipment will be displayed, such as tube cutters, flaring tools and benders.

The Patterson Foundry & Machine Co., East Liverpool, Ohio

PROCESSING EQUIPMENT

Grinding, mixing, blending and process equipment for the chemical and allied industries.

Patterson-Kelley Co., Inc., East Stroudsburg, Pa.

BLENDER

Used for blending of dry material, the unit has a built-in charging hopper which is hinged and a screw within a hollow trunnion to feed hopper contents into blender.

MIXING INTENSIFIER

Consists of a high speed rotating agitator installed inside of a standard dry blender to intensify mixing action and break-up lumpy material.

REACTION VESSEL WITH AGITATION

A reaction vessel featuring a heavy duty double motion drive which operates a scraper type agitator.

The Perkin-Elmer Corp., Norwalk, Conn.

MOBILE INFRARED SPECTROMETER

The instrument is a single beam spectrometer with automatic accessories for complete spectrum recording and a densitometer for accurate single point determinations. Mounted on a metal console caster to provide on-the-spot infrared analysis where a reaction is taking place—in the laboratory, the pilot plant or at the process stream.



New FILTER CLOTH SELECTOR CHART

...helps you
pick the right
synthetic cloth
for your filter!

This handy new folder contains samples of FEON fabrics, technical data on their properties, and a selector chart showing what fabrics are best for what chemicals.

These facts have never been available in one place before . . . you'll want to keep this valuable piece in your files for a long time.

Just write us on your company letterhead. We'll send your Selector Chart by return mail.



Send
for it
today!

31-G

FILTRATION FABRICS DIVISION
FILTRATION ENGINEERS, Inc.
155 Oraton Street • Newark 4, N. J.

When inquiring check CP 7342
on handy form, pgs. 2-3

CHEMICAL PROCESSING

**PROTECTIVE
CHEMICAL RESISTANT**

**TOTRUST
INSTANT DRY PRIMER**

and
VINYL COATING

**Stop
Corrosion**

Resist
**ACIDS and
CAUSTICS**

Protect metal surfaces from the spillage or fumes of acids or alkalis instantly with these protectioneered coatings tested and proven from coast to coast.

**TOTRUST INSTANT
DRY PRIMER**

- Why wait hours for your priming coat to dry? This primer permits over-painting in 10 to 30 minutes.
- Primes Galvanized or Aluminum, Rusted or Clean, Damp or Dry, Painted or Unpainted metal.
- Saves hours... Saves Dollars.

TOTRUST VINYL COATING

- Tough Vinyl Finish resists chemical fumes, splash and spillage. Have you an anti-corrosion problem? Your inquiry will receive the careful attention of our specialists.

**TAKE the GUESSWORK
out of
Corrosion
Control**

Let us help you
with your corro-
sion problem.
Send us the de-
tails for analysis
today.



**THE
WILBUR & WILLIAMS CO.**

130 Lincoln St., Boston 35 (Brighton), Mass.
Dept. C1510

CHEMICAL SHOW PREVIEW

Perl Machine Manufacturing Co., Brooklyn 1, N.Y.

AIR CLEANING MACHINES

A high speed cleaning machine for bottles, jars and other containers which supplies a uniform blast of air to remove all foreign particles from inside.

AMPOULE FILLING MACHINE

Entire filling mechanism made from glass and capable of an output of 40 to 60 ampoules per minute. The machine does not leave any drops in the neck of the ampoules and thus eliminates the danger of charring when sealing the ampoules.

COLLAPSIBLE TUBE FILLING & CLOSING UNITS

The first machine requires but one unskilled operator to insert the empty tubes on the filling holder and then transfer the filled tubes into 1 of the 10 closing holder forms on the synchronously rotating turntable. Output per hour is between 1500 to 1800. Closing machine performs operation automatically by putting two folds in one direction and a third fold in the opposite direction.

GRAVITY, PRESSURE, VACUUM FILLING MACHINES

Adaptable to all sizes of bottles, jars or cans from 1/2 oz to 1 gal. Equipped with micrometer type filling height regulator to insure positive and accurate filling.

The Permutit Co., New York 18, N.Y.

ION EXCHANGERS

Ion exchange units of company will be featured.

The Pfadler Co., Rochester 3, N.Y.

COMBINATION DRIVE & ROTARY SEAL ASSEMBLY

Shown will be a combination pulley drive and rotary seal assembly finding application for agitators. For example, unit lends itself to polymerizations under high pressures or vacuum where leakage or contamination must be prevented.

Philadelphia Gear Works, Inc., Philadelphia 34, Pa.

DRIVE REDUCTION UNIT

Principal uses are as a reduction unit between driving motor and cooling tower fan. Unit consists of two stage reduction: first, (high speed) is a shaved and hardened helical gear combination; and second, (low gear) is spiral bevel set. A complete line of reducer sizes to take care of varied applications is available. Horsepower range is from 14.6 to 200 and ratio range from 5.05 to 12.5.

Photovolt Corp., New York 16, N.Y.

CONTROL INSTRUMENTS

Colorimeters, fluorescence meters, pH meters, reflec-

(Continued on next page)

**EXPLOSION STARTS
BUTADIENE FIRE**
**Blaw-Knox Automatic Fog System
Confines Blaze to Small Area**



*Deluge Systems, Wet
Pipe Systems, Dry Pipe
Systems, Water Spray
and Fog Systems, Rate-
of-Rise Sprinkler Sys-
tems, and Foam and
Carbon Dioxide Exting-
uisher Systems.*



"LITTLE
JOEY SPRINKLER"

A serious fire, yes, but no "total loss"—thanks to the protection of adjacent equipment by smothering blankets of water from a

BLAW-KNOX AUTOMATIC FOG SYSTEM

Actuated by rate-of-rise thermostats, this system sounds an alarm and instantly throws a dense, quenching fog of water on the danger spot—either extinguishing or controlling the blaze while protecting adjacent equipment.

A Blaw-Knox System engineered for the fire hazards existing in or around your plant is a most effective weapon against fire's toll. Your insurance savings as they accrue applied to its cost—provide you with the utmost in fire protection plus a good financial investment... Glad to consult with you and submit an estimate without obligation.

BLAW-KNOX SPRINKLER DIVISION

of **BLAW-KNOX CONSTRUCTION COMPANY**

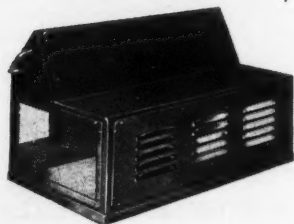
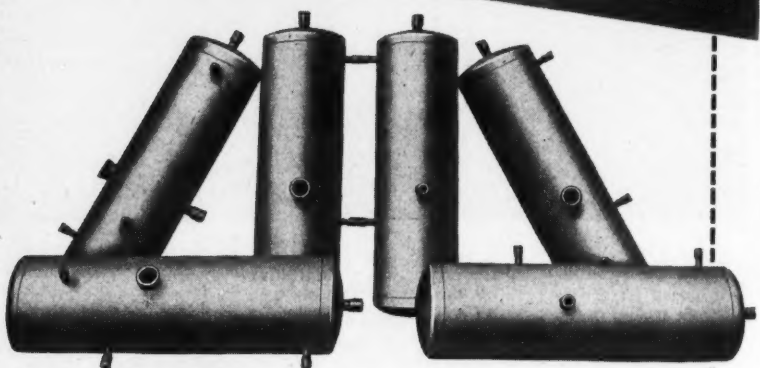
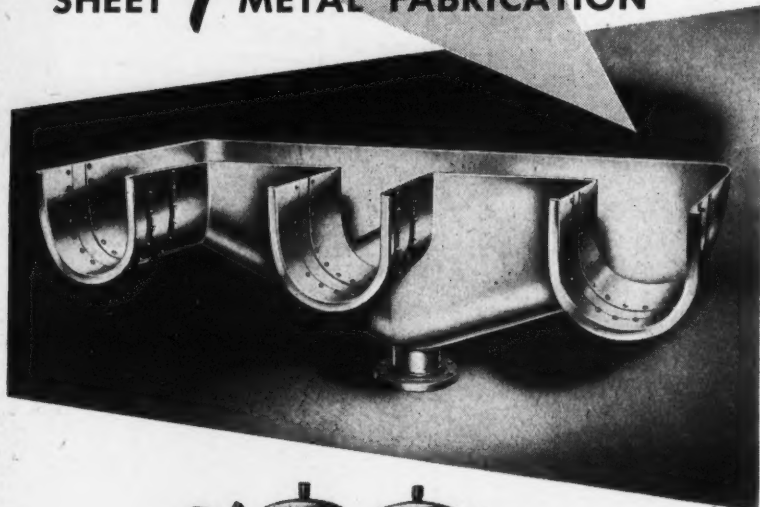
829 Beaver Ave., N.S., Pittsburgh 33, Pa.

Offices in Principal Cities

BLAW-KNOX **AUTOMATIC
FIRE PROTECTION
SYSTEMS**

When inquiring check CP 7344 on handy form, pgs. 2-3

Kirk and Blum Special SHEET METAL FABRICATION



Kirk and Blum is well equipped and experienced to fabricate your work to the most exacting specifications. We specialize in custom-built parts and assemblies

of sheet steel, light plate, stainless, aluminum, monel and other alloys to $\frac{3}{8}$ " thickness.

Send us your prints for estimate. No obligation. Write for booklet "Sheet Metal Assemblies."

THE KIRK & BLUM MFG. CO.
3133 FORRER AVE.
CINCINNATI 9, OHIO

Kirk and Blum

When inquiring check CP 7345 on handy form, pgs. 2-3

CHEMICAL SHOW PREVIEW

(Continued from preceding page)
tion meters, densitometers, illumination meters and multiplier-photometers.

Pittsburgh Corning Corp., Pittsburgh 22, Pa.

GLASS INSULATION

Photographs and demonstration displays will feature Foamglas insulating material. It is described as a rigid, light weight block of glass containing millions of separate hermetically-sealed cells, each filled with dead air. Possesses resistance to moisture, vapor and acid atmospheres. Incombustible and vermin-proof.

Podbielniak Inc., Chicago 11, Ill.

SOLVENT EXTRACTOR

Designed for pilot and small scale production in unit operations involving liquid-liquid contacting, washing, solvent extraction and chemical treating of immiscible liquid-liquid systems and those containing solids. Available in corrosion resistant materials, unit is compact, automatic and totally enclosed.

Prater Industrial Products, Chicago 50, Ill.

SEPARATOR

Operating on air alone, the Dual Cone Fractionator is used to separate finely ground materials according to particle size. It is available in sizes from laboratory models up to individual units capable of handling 10 to 20 tons per hour.

FEEDER

Rotary Airlock Feeder is used to feed materials into and out of pneumatic conveying systems. Unit is fabricated entirely of cast iron or brass.

Pressed Steel Tank Company, Milwaukee 14, Wis.

CONTAINERS

Exhibit will include containers for gases, liquids, and solids. Cylinders, drums and barrels made from steel, aluminum, nickel, monel, and stainless will be shown.

Proctor & Schwartz, Inc., Philadelphia 20, Pa.

DRY FREEZE UNIT

Dries heat sensitive materials even while frozen—leaving them unchanged chemically or biologically. Freeze-Drying unit consists of a horizontal cylindrical chamber for drying under vacuum, a refrigeration system and a freezer cabinet. Offers fast drying of biological, chemical and food materials.

Productive Equipment Corp., Chicago 12, Ill.

VIBRATING SCREENS

Exhibited will be vibrating screens applicable to wet

WORKS WHERE OTHERS WON'T

for
**SUBMERGED
OILLESS
BEARINGS**

SPECIFY

WITH CONFIDENCE

- OPERATE DRY or SUBMERGED IN DYES, PLATING, CLEANING & CHEMICAL SOLUTIONS, GASOLINE, FOODSTUFFS
- TRULY OILLESS AND SELF-LUBRICATING
- EXTREMELY DURABLE
- CONSTANT COEFFICIENT OF FRICTION
- APPLICABLE OVER A WIDE TEMPERATURE RANGE—even where oil solidifies or carbonizes
- EXTENSIVELY USED IN CONVEYORS, PUMPS & OVENS
- ROTATING SEALS OF GRAPHALLOY ARE UNEXCELLED

**GRAPHITE METALLIZING
CORPORATION**

1004 NEPPERHAN AVENUE, YONKERS 3, NEW YORK

When inquiring check CP 7346 on handy form, pgs. 2-3

CHEMICAL PROCESSING

CHEMICAL SHOW PREVIEW

and dry sizing and de-watering of a wide range of materials and products.

Pulva Corporation, Perth Amboy, N.J.

FEEDER

Unit has ability to feed sticky, semi-plastic or mastic materials at controlled, uniform rates to give capacities from a few pounds to 50 tons per hour. Designated as the Pulva Feeder, it consists of a cylindrical housing mounted on a vertical shaft by means of spider arms so that the housing revolves with the shaft. Open at the top and bottom, the cylinder has a circular plate mounted at the bottom edge and of large diameter. There is an open space of $\frac{1}{2}$ to 3" between the plate and bottom of the cylinder through which a plow extends into the cylinder to remove material as the feeder revolves.

Pulverizer Machinery Company, Chatham Road, Summit, N.J.

GRINDERS

Pulverizers, atomizers, and dust collection equipment exhibited will cover grinding as fine as the 1 to 25 micron range. Display of key models will illustrate entire line of full scale units. Action of the equipment will be demonstrated.

Radio Corp. of America, Camden 6, N.J.

MINIATURE TELEVISION EQUIPMENT

RCA industrial TV equipment consists of a miniature camera and a control monitor, together with a connecting cable. The equipment permits remote monitoring of meters and indicators, hazardous operations, multiple, long-time tests at different places and conditions in furnaces, for example. Camera weighs $7\frac{1}{2}$ lb and is a 16 mm type, $10\frac{1}{2}$ " long, 5" high and $3\frac{1}{2}$ " wide. Monitor weighs 70 lb, employs standard 10" viewing tube and operates from a 115 v, 60 cps power supply. Since the monitor's scanning frequency of 525 lines, 60 frames is the same as for broadcast television, it is possible to plug in additional standard receivers.

Reliance Electric & Engineering Co., Cleveland 10, Ohio

MOTOR DRIVES

Providing for controlled acceleration and deceleration, wide speed range and quick reversing are these adjustable-speed drives. The AC motors are corrosion, resistant and explosion proof.

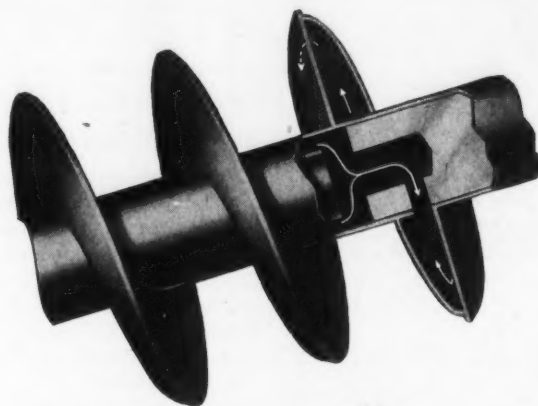
Republic Steel Corp., Cleveland 27, Ohio

STAINLESS STEEL PRODUCTS & METALLIC TUBING

Products pertinent to the chemical industry fabricated from manufacturer's Enduro stain stainless steel.

(Continued on next page)

A great new advancement in heat exchangers...



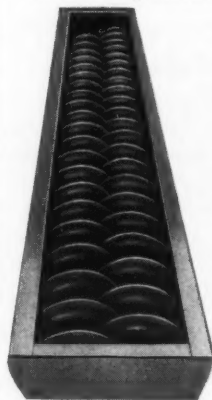
THE holo-flite PROCESSOR

(HOLLOW-FLITE)

A simpler, more compact way to cool slurries, solids or pastes—in continuous flow!

Do you have processes where slurries, solids, pulps or pastes must be cooled or cooked? Do you know you can now handle such processes—in continuous flow—in as little as 1/5th the space required by other types of heat exchangers—and with many other important advantages?

The newly-developed HOLO-FLITE Processor is the answer!



what IT IS!

Basically the HOLO-FLITE consists of two or more flights of hollow-bladed screw conveyors. The product to be processed moves in a trough around the conveyor screws. The heat-transfer fluid circulates through the hollow blades and shafts of the conveyor. The product is constantly rotated into, around, under and over the blades and shafts through which the heat-transfer fluid is circulating, assuring quick, uniform heat passage between the two mediums—as the product is continuously moved along in a bulk-flow without interruptions!

Get the complete story on HOLO-FLITE savings and how this new advancement can simplify your processing operations. It is backed by the same organization that pioneered COTTRELL Precipitators and MULTICLONE Collectors—your assurance of complete dependability.

•Reg. T.M.



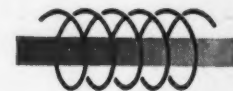
DETAILED INFORMATION!
New 8 page bulletin describing HOLO-FLITE features and applications will gladly be sent on request. Write, wire or phone for your free copy!

why IT'S BETTER!

The HOLO-FLITE principle provides many important advantages in modern processing operations...



ITS LARGE HEAT-TRANSFER SURFACE requires far less space—as little as 1/5th the space required by other heat-exchange equipment. Further, flights can be "stacked" as high as desired to save floor space, simplify installation!



ITS SLOW ROTATION IS SO GENTLE that granular and powdered solids are handled with no dusting—little or no particle abrasion. Result—no dust recovery problems... simple, inexpensive installation.



IT IS ADAPTABLE to a wide range of applications—handles solids, pulps, pastes and slurries with equal ease. Heat transfer agent can be refrigerant, water or other fluids to provide a wide range of temperatures. Cooled products can be packed directly from HOLO-FLITE discharge, saving time, space and additional handling.



IT CAN BE DESIGNED to handle virtually any capacity by varying the diameter and length of the flights, and the number of "tiers."

WESTERN Precipitation CORPORATION

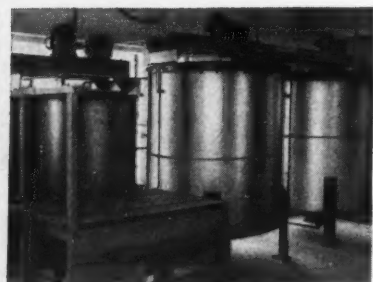
ENGINEERS, DESIGNERS & MANUFACTURERS OF EQUIPMENT FOR COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUIDS

Main Offices: 1025 WEST NINTH STREET, LOS ANGELES 15, CALIFORNIA
CHRYSLER BLDG. NEW YORK 17 • 1 LaSALLE ST. BLDG., 1 N. LaSALLE ST.,
CHICAGO 2 • HOBART BUILDING, SAN FRANCISCO 4, CALIFORNIA
PRECIPITATION CO. OF CANADA, LTD., DOMINION SQ. BLDG., MONTREAL

When inquiring check CP 7347 on handy form, pgs. 2-3



Time is money in any processing operation and the sure way to step up the pace of your operations is to install NETTCO Engineered AGITATORS! Nettco offers the most complete line of drives and stirrers — ready-built to serve your exact needs. By combining the right components, our Engineers can give you agitation that's "tops" from every angle:



Bank of Nettco Model WT-11 Drives at American Reinforced Paper Co., Attleboro, Mass.

FIRST COST — Standardized components — drives, stirrers, baffles, accessories — save you money because they are quantity-produced to reduce manufacturing costs.

OPERATING COST — Nettco Agitators are custom-made from these standard components for each job... this means they save processing time and reduce processing costs.

UPKEEP COST — Nettco drives have heavy-duty bearings, shafts, gears, housings — and extra-large oil reservoirs. They're engineered to reduce maintenance, keeping moving parts to a minimum.

It will pay you to find out more about Nettco Agitating Equipment: the choice of leading process industries throughout the nation. Write for recommendations and data to NEW ENGLAND TANK & TOWER COMPANY, 93 Tileston St., Everett 49, Mass.

See Us



at Booth 50 at the New York Chemical Show

NETTCO Engineered AGITATORS

When inquiring check CP 7348 on handy form, pgs. 2-3

CHEMICAL SHOW PREVIEW

(Continued from preceding page)

Also, standard galvanized electrical metallic tubing to which polyethylene is applied by a patented extrusion process and which finds inexpensive application for wiring raceways.

Rietz Mfg. Co., Santa Rosa, Calif.

DISINTEGRATOR

Listed applications for this equipment cover crushing, grinding, mixing, shredding, pulping, blending, homogenizing and trituration. It is particularly suitable for those jobs which require a maximum degree of sanitation together with an even particle size and continuous flow. Low power costs are a feature resulting from elimination of recycling because of a 360° screen surrounding the rotor. A differential discharge is available to separate undersirable material from the primary product.

CONTINUOUS HEAT EXCHANGER

Equipment is a screw-type conveyor with hollow shaft and screw and a jacketed trough. Adaptable to varied process problems, the equipment may be fitted for vacuum drying and evaporating or with supplementary air for drying, heating or cooling. All units are suitable for multipass operation through horizontal mountings, one above the other.

Robbins and Myers Inc., Springfield, Ohio

MOYNO PUMPS

Screw type pump which handles abrasive suspensions and heavy slurries with metering accuracy. Positive displacements from 1 to 250 gpm.

Rockwell Manufacturing Co., Pittsburgh 8, Pa.

VALVES & METERS

Straightway plug valves of corrosion resistant metals in screwed and flanged ends from 1/2 to 4" in size and 150 and 300 psi classes. Those valves made of materials subject to galling are Merchrome coated as preventive measure. Industrial meters are for measuring most chemicals.

Charles Ross & Son Co., Brooklyn 5, N.Y.

MIXING AND GRINDING MACHINERY

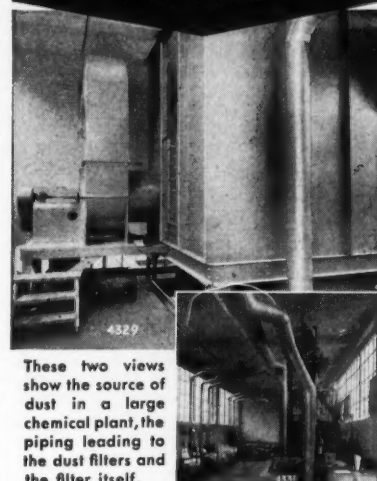
Laboratory scale roller mill with a cast iron frame and designed for use in most grinding processes. For mixing and dispersing materials of heavy consistencies will be displayed a kneader of 1 pint capacity. Demonstrating double motion action is a 1 or 2 gallon change can mixer with replaceable stainless steel cans.

Entoleter Division, The Safety Car Heating and Lighting Co., Inc., New Haven 4, Conn.

CENTRIFUGAL MIXER

Compact size of mixer is one of its features — it re-

SLY PIONEERS AND LEADERS IN DUST CONTROL



These two views show the source of dust in a large chemical plant, the piping leading to the dust filters and the filter itself.

★ NO SALESMEN

We employ no salesmen, but — *mature engineers* are at your service without obligation.

... at New York • Chicago • St. Louis • Philadelphia • Minneapolis • Birmingham • Cincinnati • Lansing • Los Angeles • Rochester • Toronto

The proper application of Dust Control Equipment to your needs is definitely a science.

Your Sly Engineer, backed by an experienced technical staff at the home office, brings that science to your door.

The know-how of dust control is not found in print — it is gained only by experience. With over 50 years' experience in this field, involving thousands of installations in practically all industries, we have an exceptional background which can be of great value to anyone with a dust problem.

Yet-Sly costs *no more* (sometimes *less*). May we send you Bulletin 98 and discuss your problem with you?



THE W. W. SLY MANUFACTURING CO.

4754 Train Avenue • Cleveland 2, Ohio
New York • Chicago • St. Louis • Philadelphia
Minneapolis • Birmingham • Cincinnati • Lansing
Los Angeles • Rochester • Toronto

When inquiring check CP 7349 on handy form, pgs. 2-3

CHEMICAL PROCESSING

CHEMICAL SHOW PREVIEW

quires only 12 cu ft of space. Finished mixtures are produced at rates up to 250 lb per min, and the unit can be used for both continuous or batch mixing. Applications include dispersion or blending of food mixes, water paints, pigments, polystyrene powders and glass fiber and plastic powder.

DUST COLLECTOR

Requiring no accessory equipment except a fan and connecting ducts, the unit is said to collect dust at practically 100% efficiency. Collector consists of a casing divided into from 2 to 12 sections, each containing a group of 8 sleeves. The dust laden air passes first through a hopper at the base of the machine where it expands and a certain amount of dust is deposited. Then, the remainder of the dust is carried up with the air into the cloth sleeves where it is retained, and the clean air passes through to a discharge manifold.

Sarco Company, Inc., New York 1, N.Y.

PROCESSING EQUIPMENT

Scraper strainers, steam traps and temperature regulators.

Claude B. Schneible Co., Detroit 32, Mich.

SCRUBBERS

A Schneible Multi-Wash Collector in operation with a transparent shell to show the action of the air or gas and the recirculated liquid. Photos and diagrams will illustrate standard and special applications. The unit is for the removal of airborne dust, fumes, vapors and odors or the recovery of airborne materials. It consists of a vertical cylindrical column having several stages of stationary impingement elements. The gas or air enters at the bottom and spirals upward at a velocity sufficient to break up the descending liquid into spray patterns. This action is highly effective in removal of particulate matter.

Schutte and Koerting Co., Cornwells Heights, Bucks Co., Pa.

NON-FLOOD CONDENSER

Packaged unit with integral hot-well, and the arrangement of the condenser is such that build-up of foam or slug will not cause condenser to fail due to flood back.

Scientific Glass Apparatus Co., Inc., Bloomfield, N.J.

GENERAL LABORATORY APPARATUS

This manufacturer will show recent developments in distillation columns, pilot plant glassware, latest type balances and electronic laboratory instruments.

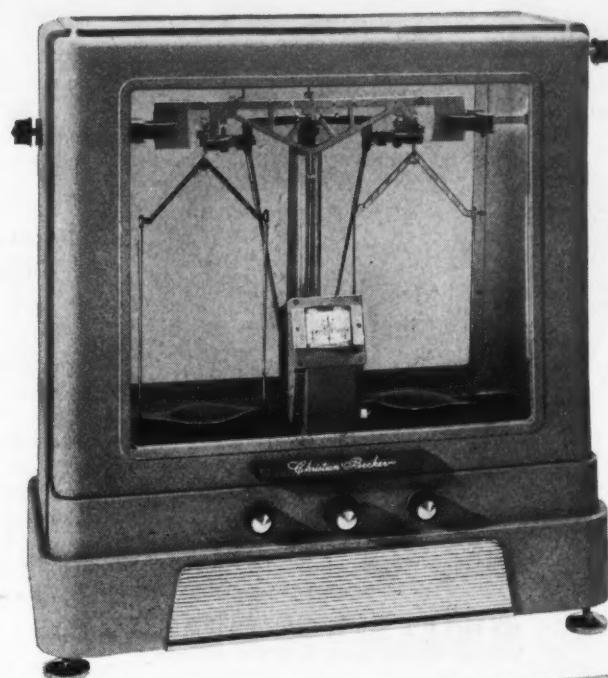
Seederer-Kohlbusch, Inc., Englewood, N.J.

ANALYTICAL BALANCES

Analytical balances of 200 gram capacity with extruded solid aluminum cases, finished in jeweler's bronze.

(Continued on next page)

Now...PROJECTOMATIC®



'Projectomatic'
Model AB-1

the Fastest Repetitive Balance ever Developed!

Check these Highly Advanced Features

Completely Automatic!
Direct Readings to 1/10 mg.!
Ideal also for regular laboratory work!

- Automatic Dampers at beam ends assure quick, positive readings.
- Scientifically-positioned screen with graduated vernier at working level with direct reading to 1/10 mg.
- Specially designed completely new projection apparatus with scientific optical system means sharper, clearer image on screen.
- New, tapered case design focuses even light on reading area, provides greater working access.

- V-end beam support, plus arcing-type beam arrest give greater stability, less knife-edge dulling.
- Leveling screws cushioned with special shock mountings minimize vibration transfer from table or laboratory room.
- Smooth-acting vertical rider lifter moves, in one motion, over entire graduation in both directions.
- Functionally engineered case construction of rigid, non-magnetic aluminum.

Ask your Supply House Salesman about the new 'Projectomatic' Balance today, or write:

Christian Becker

Division of
THE TORSION BALANCE COMPANY

Main Office and Factory: Clifton, N. J. • Sales Offices: Chicago • San Francisco

When inquiring check CP 7350 on handy form, pgs. 2-3

heart of the strainer

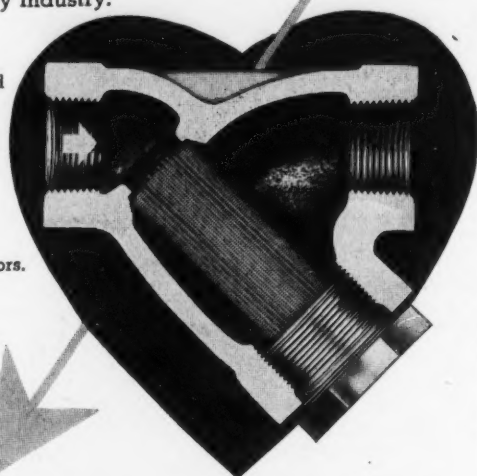
A high-grade, woven Monel wire screen is the heart of the Yarway Strainer—one reason why hundreds of thousands of these strainers are policing pipe lines in nearly every industry.

OTHER REASONS —

- cadmium plated bodies and screen caps
- straight threads, machined faces and spark-plug-type gaskets on screen caps
- ten sizes from 1/4" to 3"

Sold by 216 industrial distributors. Write for Bulletin S-203.

YARNALL-WARING CO.
125 Mermaid Ave.
Philadelphia 18, Pa.



YARWAY STRAINERS

When inquiring check CP 7351 on handy form, pgs. 2-3

METALAB

LABORATORY EQUIPMENT

Out of this world in **QUALITY...**

Down-to-Earth in **ECONOMY**

Imagination in Lab Equipment?
Yes, but also the sound business virtues
of Economy, Efficiency, and Long Life.
Let METALAB help you plan—without obligation.
Write for Complete Catalog.

SECTIONAL LABORATORY FURNITURE
and EQUIPMENT by

METALAB

Equipment Corp.

230 DUFFY AVE., HICKSVILLE, L.I., N.Y.

When inquiring check CP 7352 on handy form, pgs. 2-3

CHEMICAL SHOW PREVIEW

(Continued from preceding page)

Selas Corporation of America, Philadelphia 34, Pa.

MICRO-POROUS-PORCELAIN FILTERS

Variety of products to be shown including: micro-porous-porcelain filters; heat processing equipment, emphasizing high temperatures, precise and automatic control; and devices for removing vapor from air, liquids and petroleum from compressed air and gas.

The Sharples Corp., Philadelphia 40, Pa.

CONTINUOUS CENTRIFUGES

One of the main features of the exhibit will be a series of slides illustrating the continuous cyclic operation of the company's centrifuge for recovery and dehydration of crystals. The unit handles slurries with 15 to 60% solids. Other display units will be: Super-D-Canter, a centrifuge for removal of solids from liquids, clarification of liquids and classification of solids; Nozjector, used for separation of two immiscible liquids containing liquids; Super Centrifuge, developing a centrifugal force 13,200 times gravity; and, the Laboratory Super-Centrifuge, designed for general laboratory and production needs.

Simplicity Engineering Co., Durand, Mich.

FEEDERS & CONVEYORS

Company plans to exhibit an operating model of their Os-A-Veyor type feeders and conveyors using inertia type drive mechanism. These mechanically actuated feeders or conveyors will feed from bins at a regular controlled rate and at the same time keep the material in the bin active so it greatly reduces any bridging action.

John E. Sjostrom Co., Philadelphia 22, Pa.

LABORATORY FURNISHINGS

Feature of exhibit will be a transparent fume hood which maintains a constant air velocity at intake regardless of opening. Unaflex laboratory furnishings will also be shown.

The W. W. Sly Manufacturing Co., Cleveland 2, Ohio

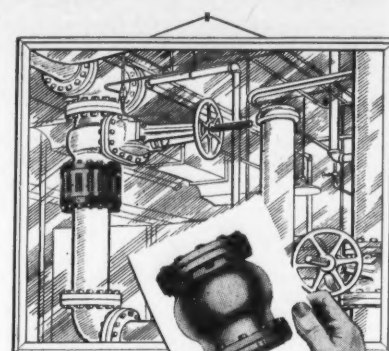
DUST FILTER

Sly dust filter complete with fan and motor will be shown. Cloth filter of large area is confined in small space. All sorts of dusts under various conditions are handled.

Socony Vacuum Oil Company, Inc., 26 Broadway, New York 4, N.Y.

DEFOAMANTS

A group of four water dispersible products to control foam in industrial processes. These materials can be diluted with water for economy and are effective in controlling foam in paper machines, sewage disposal,



Put

WILLIAMS-HAGER

flanged

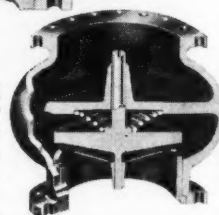
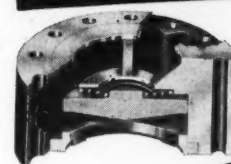
Silent CHECK VALVES

into the Picture-

and your

WATER HAMMER

WORRIES ARE OVER



When you install Williams-Hager flanged Silent Check Valves in your water system, you complete the happy picture of a plant

... rid of costly water hammer. These dependable valves provide positive protection in any position including angular, horizontal and vertical with flow either upward or downward. Disc and seat are renewable—conical spring is non-wearing. Easy to install or reseal, they are available in standard pipe sizes from 1" to 20".

Write today for Bulletin WH-100.

CHECK VALVES

THE WILLIAMS GAUGE CO.

Pump Valves . . . Water Gauges . . . Gauge Cocks . . . Steam Traps . . . Pump Governors . . . Feed Water Regulators . . . Water Columns

3015 PENNSYLVANIA AVE. • PITTSBURGH 33, PA.

When inquiring check CP 7353 on handy form, pgs. 2-3

CHEMICAL PROCESSING

CHEMICAL SHOW PREVIEW

dyeing applications and a number of others of this general type.

INSECTICIDE BASE

Spray oil can be used alone or with insecticides and fungicides on cotton seedlings, truck crops, corn, fruit and shade trees. Tests show the material to be harmless to plant life. It is being tried as a medium for adding trace elements to citrus crops.

HEAT TRANSFER OIL

Light bodied oil can be used for large scale low temperature applications. More economical than glycol solutions, it is non-corrosive and does not deteriorate with long service.

PLASTICIZER

Aromatic oil can be used to plasticize nitrile rubber and vinyl plastics. Being relatively low cost, it is often used to extend other plasticizers. It is compatible with these and with resins mentioned.

SPECIALTIES

Nearly 100 other products will be shown. Among them is a material which, when added in small amounts eliminates the pitch problem in making paper from green wood.

Sparkler Manufacturing Co., Mundelein, Ill.

FILTERS

Horizontal plate, self-cleaning, and dual disc filters will be shown. Principal uses include filtration of pharmaceuticals, chemicals, oils, varnishes, etc. Dual disc type is reported to offer maximum filter area in a minimum of floor space.

Sprout, Waldron & Co., Muncy, Pa.

MATERIALS HANDLING SYSTEM

Constructed of Plexiglas and stainless steel throughout, the Pneu-Vac pneumatic system handles free-flowing materials in powdered or granular form. Keeping products free from infestation is one of the features of this unit which has a range of application from starch to cork granules. System operates under reduced pressure, and special design of the fan and collector with its rotary air lock seal practically eliminates dust loss at the fan discharge.

VERTICAL MIXER

Mixer handles dry free-flowing materials and is convenient for handling batch mixes from 10 to 360 cu ft. It is furnished in stainless steel or black iron.

The Superior Electric Co., Bristol, Conn.

AC VOLTAGE CONTROLS

Various sorts of voltage regulators and variable transformers will be shown. Exhibit will also include AC and DC power supplies and binding posts.

(Continued on next page)



*Overcured Sections — unavoidable every 30' to 40' in all belts made by the flat press method. Only Rotocuring (continuous, non-stop curing) eliminates this major cause of belt failure.

OCS* means Trouble Ahead!

This Achilles Heel of Conventional Conveyor Belts now completely eliminated by ROTOCURE

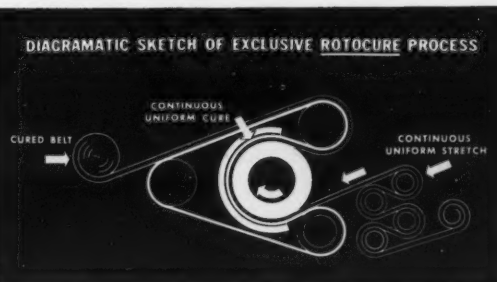
Your neighborhood tailor with a hot pressing iron can give you a simple but dramatic example of what *too much* heat and pressure applied to a given area of cloth (or rubber compound) can do to these structures. In the manufacture of conveyor belting by conventional flat press curing the result is overcured segments 2" to 4" long across the belt width. These weakened portions of the belt are inherent in this process of "start and stop" vulcanization. They get a double treatment because earlier cured areas move forward *less than a full press length*.

Rotocure, the modern BWH method, eliminates these Achilles Heels of otherwise strong belting. Your Rotocure belt is *constantly* in uniform motion during vulcanization.

How does it pay off? In (1) elimination of mechanical distortion at the press ends, (2) up to

40% increased belt flex life, (3) constant, uniform stretch, (4) uniform, abrasion-resistant covers. Remember the major CURE for high belt maintenance costs and premature belt failure is NO OVERCURING! You'll cut the costs of whatever you convey. See your BWH distributor or write us direct.

P.S. Look into BWH rotocured transmission belts also. They permit operation at lower tensions. You get an *additional* bonus in extended belt life.



Another Quality Product of

BOSTON WOVEN HOSE & RUBBER COMPANY

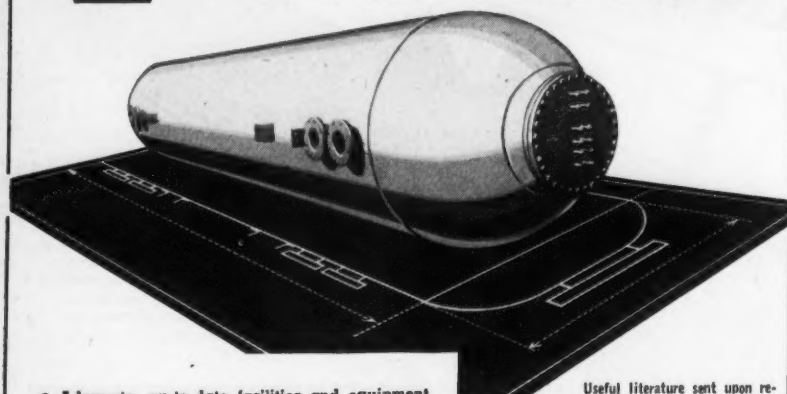
Distributors in all Principal Cities

PLANT: CAMBRIDGE, MASS. • P. O. BOX 1071, BOSTON 3, MASS., U. S. A.

When inquiring check CP 7354 on handy form, pgs. 2-3



KEYSTONE OF SUCCESS IN PLATE FABRICATION



- Adequate, up-to-date facilities and equipment located in an important industrial and home community.
- Personnel consisting of experienced and skilled workmen, engineers, technicians and research men.
- Constant striving to improve the quality of products and the efficiency of production.
- Through nearly 40 years, never once sacrificing **QUALITY** for price... remember, "Your needs are DOWNTOWN's Specialty!"
- Engineering consultation at its best... to assist you in the design and specification of specific jobs.

Useful literature sent upon request on your Business Letterhead.

During these times of National Emergency, DOWNTOWN will be glad to consult with you about delivery schedules.

DOWNTOWN IRON WORKS, INC.
DOWNTOWN, PA.
STEEL & ALLOY PLATE FABRICATION
HEAT EXCHANGERS

When inquiring check CP 7355 on handy form, pgs. 2-3



STRAIGHT FACTS ON SHRIVER FILTER PRESSES

- Lowest in cost per square foot of filtering area.
- Versatile—can be used on any filterable material, no matter how heavy, thick or viscous.
- Recovers solids — reasonably dry, firm, easy to handle.
- Clarifies perfectly, decolorizes, deodorizes, germproofs.
- Washes, extracts, to recover or remove soluble contents. Steams, melts or redissolves cake.
- Designed in any capacity, for any temperature and any pressure up to 1000 p.s.i.
- Made of any metal, wood, rubber, plastic for use with any filter media.

Shriver Filter Presses

T. SHRIVER & CO., Inc.
846 Hamilton St.
Harrison, N. J.

- ☐ Send me "Filter Facts" regularly.
- ☐ Send me the Shriver Catalog.

Name.....
Title.....
Firm.....
Address.....
City.....Zone.....State.....

When inquiring check CP 7356 on handy form, pgs. 2-3

CHEMICAL SHOW PREVIEW

(Continued from preceding page)

Surface Combustion Corp., Toledo, Ohio

HUMIDITY CONDITIONING EQUIPMENT

Humidity control equipment for very low temperature such as is required for ammonium nitrate drying, and plastics processing will be shown.

Technicon Chromatography Corp., New York 51, New York

MICRO PUMP

Pump which delivers 1.0 to 0.001 cc per stroke with an accuracy of 0.0001 cc will be shown. Vernier scale allows settings to be anywhere in the range with stated accuracy. Can be supplied for three speeds or for manual operation. Pump will operate against 70 psi.

Tri-Clover Machine Co., Kenosha, Wis.

PIPING MATERIAL & FITTINGS

In addition to corrosion resistant piping material, this manufacturer will show fittings, valves, filters, pumps and special assemblies.

Tri-Homo Corporation, Salem, Mass.

GRINDERS

Fine grinding, homogenizing, colloid production, etc., are handled by unit which uses three grinding surfaces on a single shaft.

U. S. Electrical Motors, Inc., Los Angeles 54, Calif.

MOTORS

Five types of motors will be shown. These include synchro-gear, varidrive, double enclosed, unclosed, and a sanitary type.

The U.S. Stoneware Co., Akron 9, Ohio

TOWER FILLING MATERIAL

Tower packing material lowers pressure drop 35 to 40% and offers more surface area and higher percentage of free space; and, is non-pattern forming when dumping.

Union Iron Works, Erie, Pa.

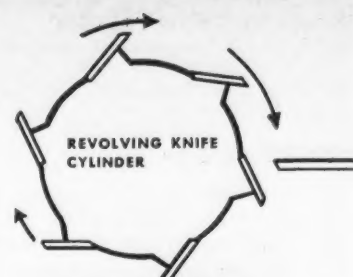
PROCESS HEATER

Full sized 100,000 Btu/hr heater will be shown. Special electric heating element will be a feature. Unit operates satisfactorily with Dowtherm 'A' or 'E' and is complete including controls and switchgear.

Vanton Pump Corp., New York 1, N. Y.

PUMPS FOR CORROSIVES

Pump features absence of stuffing boxes, gaskets or



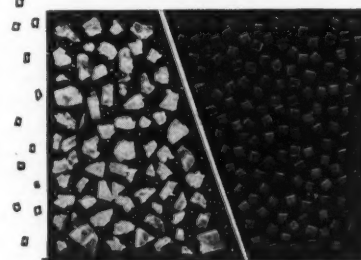
CUT!

IT'S BETTER THAN GRINDING

Uniformity of size and shape of plastic stock is of greatest importance in molding. Uniform stock means more uniform molded products. Machines that tear or cut materials irregularly do not produce the particles of the uniform size and shape that are so desirable. Instead they leave fines and a wide variation of particle sizes and shapes leading to defective molding.

Taylor-Stiles cutters cut plastic stock into particles of uniform size, without fines, and in exact shapes at high production speeds.

We also manufacture Taylor-Stiles cutters to produce filler and binder materials, as well as a full line of other precision and production cutters.



Samples of Pelleted Plastics
(Left) From Screen Grinder
(Right) From Our Dicing Cutter

Write today for illustrated literature—no obligation.

TAYLOR-STILES & CO.
20 Bridge Street Riegelsville, N. J.

When inquiring check CP 7357 on handy form, pgs. 2-3

CHEMICAL PROCESSING

CHEMICAL SHOW PREVIEW

valves so that fluid never touches metal. Suitable for handling corrosive liquids and gases. Body block may be furnished in polyethylene, bakelite, lucite, etc.

W. M. Welch Mfg. Co., Chicago 10, Ill.

VACUUM PUMPS

Various capacity pumps will be exhibited by this manufacturer, all of which feature large capacity at low operating speed. Principal uses include manufacture of vacuum tubes, neon and fluorescent tubes, vitamin production, etc. It is stated that equipment produces vacuum to .00005 mm of Hg.

Weston Electrical Instrument Corp., Newark 5, N.J.

AVERAGING RESISTANCE THERMOMETER

Unit is applicable to determining average temperatures in land storage tanks, grain bins, long drying and baking ovens, blending operations and wherever the average temperature of a mass of material such as air, gas or liquid is to be measured or controlled. Method utilizes an electrical resistance thermometer and a resistance bulb assembly.

AMPLIFIER

Measuring 9 1/4" wide x 8 1/2" deep x 6 1/8" high, the apparatus is equipped for portable service. It is an amplifier for DC measurement and control particularly suited to industrial processes requiring continuity of service. With input devices such as thermocouples, radiation receivers, resistance thermometers and photocells, related physical quantities can be measured as an automatic process.

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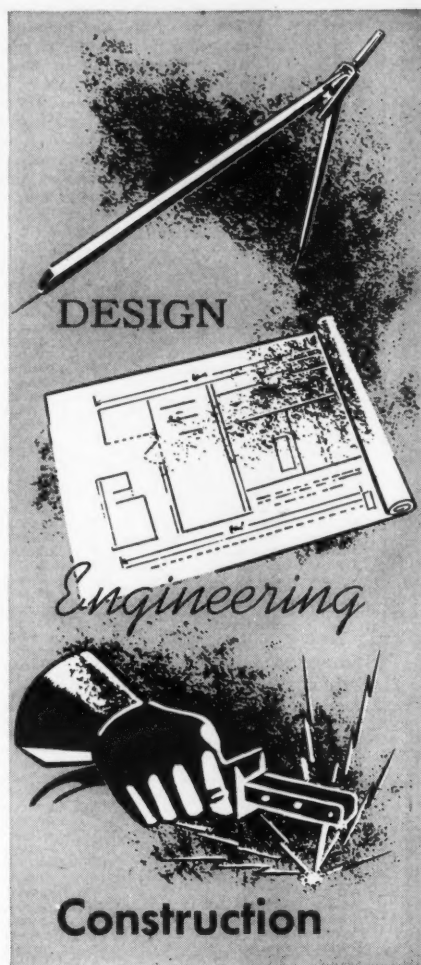
Exhibit will include several sizes of standard Worthington, Type CG pumps with and without seals, a 12" KEB pump, together with Worthington gate valves and needle valves. A 1 1/2" CNP pump made of Havg plastic is to be featured, along with demonstrating models of mechanical seals and Worthington specialties. Also to be exhibited is an industrial mixer.

★

This concludes listings of Exhibitors for this issue. Additional listings will be carried in the November issue of CHEMICAL PROCESSING.

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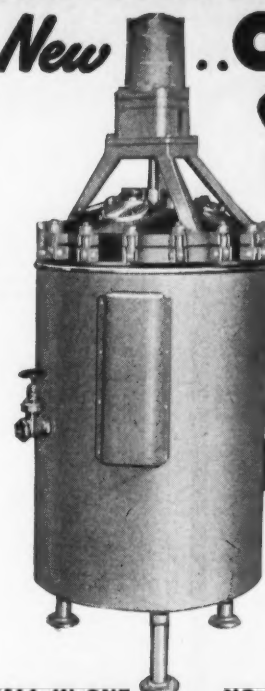
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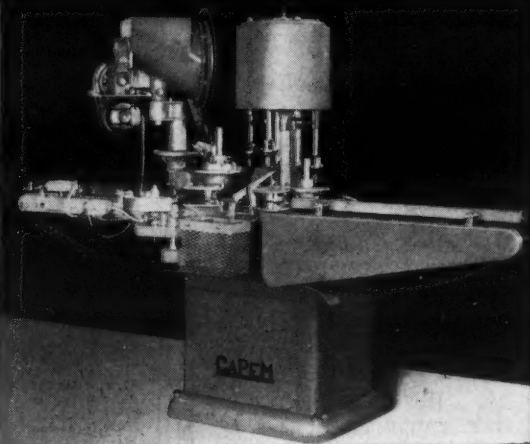
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MANY valuable high molecular weight organic products occur as a small percentage of the total material present. In conjunction with the Sharples Super Centrifuge, recovery is accomplished continuously by:

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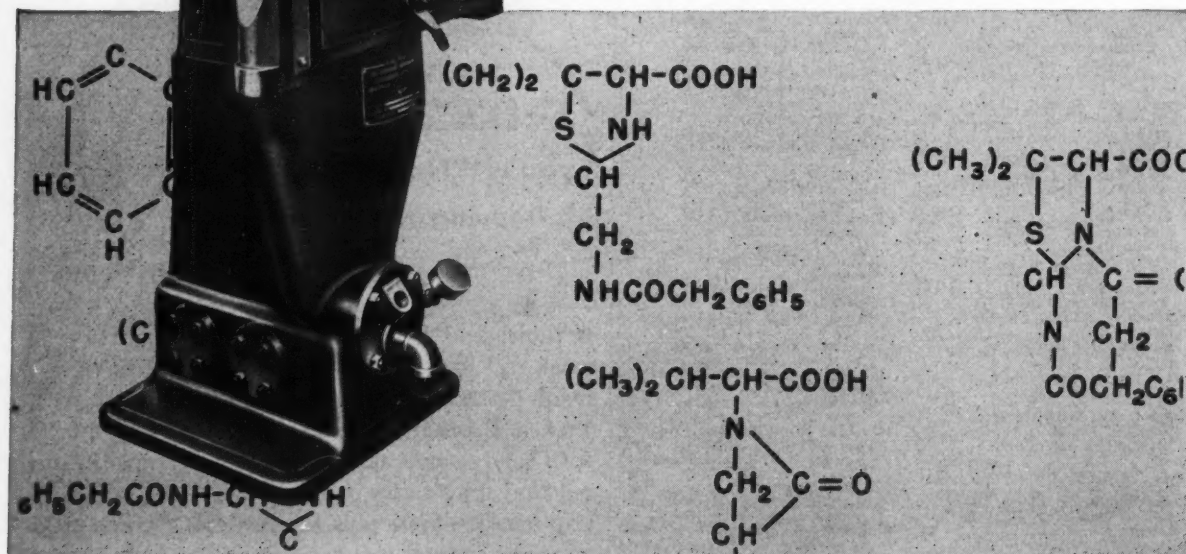
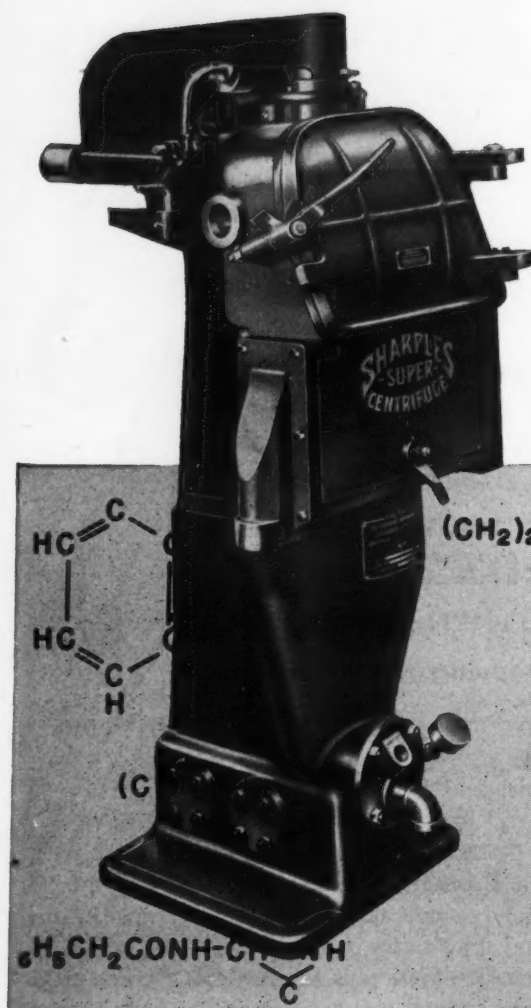
The Super Centrifuge, which operates at 13,200 x gravity, affects these separations with minimum loss of product, solvent, and mother liquor, with maximum removal of undesirable impurities. Solids are removed from the interface which otherwise cause emulsions that both contaminate and waste the product.

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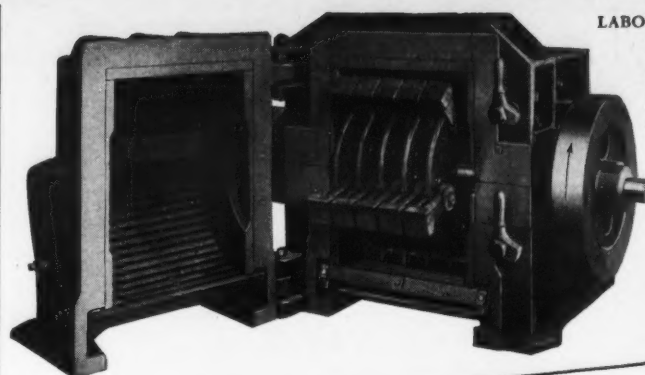
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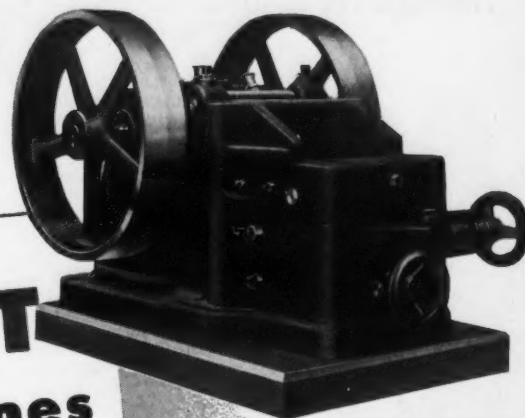
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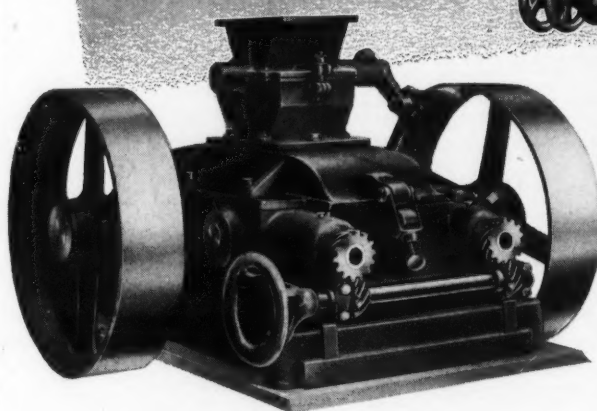
Capable of reducing soft, moderately hard and tough or fibrous materials to any degree of fineness between 1 in. and 20 mesh. The patented "Open-Door" feature permits ready accessibility for cleaning.



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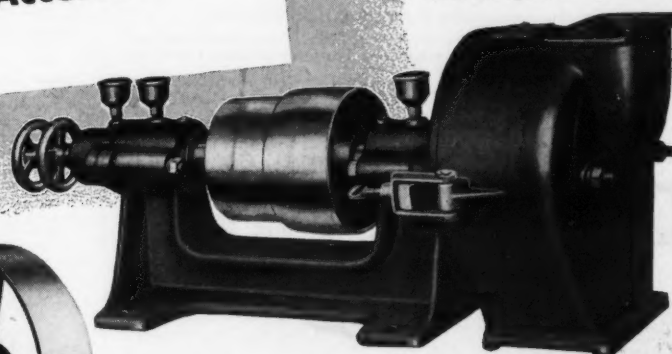
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STURTEVANT Laboratory Machines Assure Quality of Products Fast - Economical - Accurate



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PATCH
HOLES AND RUTS
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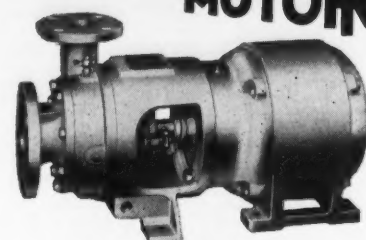
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OCTOBER, 1951

"That's Interesting"

Glycerine and sand cores

Glycerine's chemical properties are called into play in S. M. Vincent's process for making binders for sand cores required in casting of metals. According to his claims in U. S. Patent 2,534,743, these binders are made by reacting glycerine with the reaction product of a tall oil vinyl ester and maleic acid anhydride. When used with foundry sand, the resulting sand core is heat treated to cure the glycerine-containing resinous binder. (Glycerine Facts, Glycerine Information Service, New York 17, N. Y.)

De-enameling saving steel

A successful method of stripping defective porcelain enamel coatings from steel has been developed and patented. The specialized use of caustic soda is one of the important steps of the process. The company serves manufacturers of sinks, bathtubs, ranges and similar products. Two years of production testing in a pilot plant preceded the opening of expanded facilities. (New Process De-Enameling Corp., Aurora, Ill.)

Sprayed silver auto trim

With chrome disappearing from the market, auto manufacturers may find it possible to use hydrazine as a reducing agent in spraying silver to make a shiny trim. Silver may seem expensive for auto trim, but the spraying process is described as permitting application of a very thin coat. (National Patent Council Invention News & Views, Gary, Ind.)

Cup for solder

Molten solder in a cup is provided through a recently patented soldering-iron assembly. Cup rests in the end of the soldering support. Electricity melts the solder in the cup and heats an iron tip, which is bent like a beak to submerge in the molten metal, as the iron rests on the support.

More rabbits go into hats than come out of 'em

According to the Becco Echo, more rabbits go into hats than ever come out of 'em. Rabbit fur is used for the felt and goes into some 15,000,000 men's hats each year and some 5,000,000 for women.

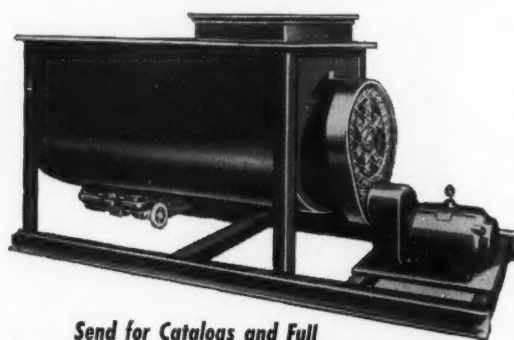
However, the production of felt hats, like other products is dependent on chemicals—hydrogen peroxide for example. While used in only one preliminary step, the operation is of great importance. This step is called "carroting" from the bright orange shade the rabbit fur assumes after treatment with nitric acid and mercury. Hydrogen peroxide has replaced mercury because it is safer and more economical. It does not impart a carrot color. (Becco Sales Corp., Sales Agents for Buffalo Electro-Chemical Co., Inc., Buffalo, N. Y.)

For more information on product at right, specify CP 7375 . . . see information request blank between pages 2-3.



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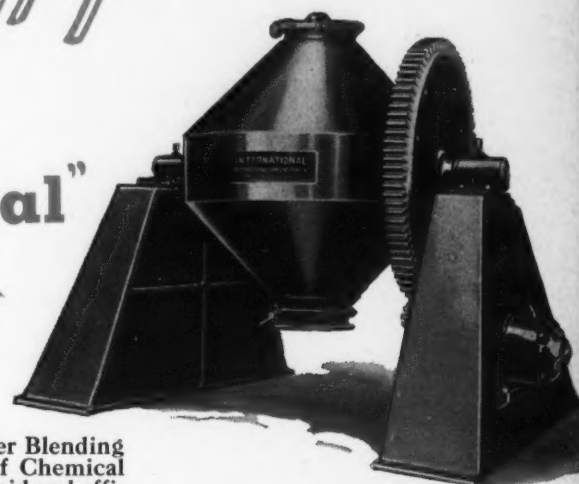
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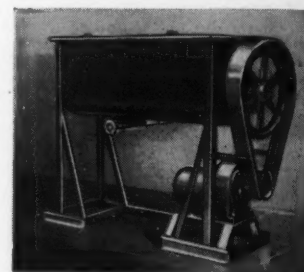


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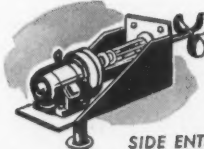
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